

# Appendix F

## Quality Assurance Assessment

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**APPENDIX B**  
**QUALITY ASSURANCE ASSESSMENT**

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## 1.0 OVERVIEW

Field and laboratory data were reviewed for consistency with the procedures outlined in the *Groundwater Monitoring Quality Assurance Project Plan (QAPP), Santa Susana Field Laboratory* (Appendix B of Haley & Aldrich, 2010) following the first quarter 2014 groundwater sampling event. Results of the review are discussed in the following sections.

## 2.0 INTRODUCTION

### 2.1 Quality Assurance/Quality Control (QA/QC) Procedures

Following each quarterly groundwater sampling event, field and laboratory data are reviewed for consistency with procedures outlined in the *Groundwater Monitoring QAPP, Santa Susana Field Laboratory* (Appendix B of Haley & Aldrich, 2010). As the project develops, it is anticipated that the quality assurance assessment conducted following each semi-annual event may be modified. The current procedures include reviewing (a) completeness of field forms and documentation and (b) analytical laboratory data for precision, accuracy, representativeness, comparability, completeness, and sensitivity.

Groundwater samples were submitted to the following laboratories:

Laboratory	Abbreviation	Location
TestAmerica Laboratories, Inc. (Primary)	TA-Denver	Arvada, Colorado
EMAX Laboratories, Inc. (Split)	EMAX	Torrance, California

### 2.2 Procedures for Collection of Quality Control Samples

The following QC samples were collected as part of the Groundwater Monitoring Program in order to ensure that all groundwater sample analysis results are consistent with the QA objectives.

- **Field duplicates:** Duplicate samples are two replicate groundwater samples collected from a given well and submitted to the primary laboratory. Field duplicates should be collected at a rate of approximately five percent of the total number of primary field samples, per method, for each sampling event.

- **Split Samples:** Split samples are two replicate groundwater samples collected from a given well. One of the split samples is submitted to the primary laboratory and the other to the “split laboratory” for separate analysis and reporting. If there is a change in the primary laboratory or when verification sampling is required, then split samples should be collected at a rate of once per year, per method.
- **Field Blanks:** Field blank samples are prepared in the field using High Performance Liquid Chromatography (HPLC) grade water. There are two types of field blanks. One type is collected by filling the same type of sample containers as those used for the groundwater samples under the same field sampling conditions as primary samples. These field blanks are then stored with field samples. In this manner, field blanks are intended to assess the potential introduction of contaminants from ambient air. The other type of field blank is collected by filling the same type of sample containers as those used for groundwater samples under ambient conditions that are presumed to be clean and away from known emission sources. These field blanks are intended to assess the potential introduction of contaminants from the source water. One field blank should be submitted per batch of water used for equipment rinse blanks.
- **Equipment Rinse Blanks:** Equipment rinse blank samples are prepared using HPLC grade water that has been used to rinse non-dedicated sampling equipment after decontaminating the equipment. Equipment rinse blanks should be collected once per sampling event for any parameter analyzed in groundwater samples collected using non-dedicated sampling equipment.
- **Trip Blanks:** Trip blank samples are prepared in the laboratory using de-ionized water. The prepared trip blank samples are shipped from the laboratory with the empty sample containers to the field site and are stored and shipped with the collected samples back to the laboratory unopened. A trip blank is used to assess the potential introduction of contaminants from sample containers or during the transportation and storage process. One trip blank should be carried in each cooler containing field samples for volatile organic compounds (VOCs) and gasoline range organics (GRO) analysis. Trip blank samples will be analyzed for VOCs and/or GRO.
- **Matrix Spike/Matrix Spike Duplicates:** A matrix spike (MS) is an aliquot of a field sample spiked with a known concentration of all target analytes. A matrix spike duplicate (MSD) is a replicate of this process. Typically, three times the number of sample containers are filled with groundwater collected from a given well in order to provide sufficient volume of sample for MS/MSD preparation and analysis. MS/MSDs should be collected at a rate of approximately five percent of the total number of samples collected, by method, for each sampling event.

### 2.3 Sample Custody

Chain-of-custody forms were completed by MWH personnel during the performance of sampling activities conducted at SSFL, as per the processes described in the QAPP. These external chain-of-custody documents were completed appropriately upon sample transfer to analytical laboratory personnel.

## 2.4 Data Verification Process

Hardcopy data packages and electronic data were provided to Laboratory Data Consultants, Inc. (LDC) of Carlsbad, California, who initially performed a Level V review of the data. This encompassed an evaluation of sample collection procedures, holding times, blanks (to assess contamination), sample duplicates (to assess precision), laboratory control samples (LCS) (to assess accuracy), and MS and surrogate recoveries (to assess accuracy and matrix effects). Under MWH direction, LDC provided a comprehensive Level IV data review of results from newly installed monitoring wells, first time analyses, new detections, and results that appear to be inconsistent with historical trends or current understanding of transport and fate of chemical constituents. The Level IV validation included a complete review of summary information for instrument calibrations (to assess performance), compound identification, and quantitation, in addition to the Level V items.

Data were assessed in accordance with guidance from the *US Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Low Concentration Organic Data Review* (Office of Solid Waste and Emergency Response [OSWER] 9240.1-34, USEPA-540-R-00-006, June 2001), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (OSWER 9240.1-46, USEPA-540-R-08-01, June 2008), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 540-R-04-004, October 2004), *Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual* (USEPA, July 2004), and the EPA method-specific protocol criteria, where applicable.

### 3.0 QA/QC EVALUATION

#### 3.1 Field Data

##### 3.1.1 Pre-Sampling Water Levels

During the first quarter 2014 sampling event, a total of 350 wells, piezometers, or seeps were scheduled for water level monitoring. Monitoring attempts are summarized below. Nineteen wells, piezometers, or seeps were not monitored because:

- The flowing artesian well configuration was incompatible with the use of a pressure gauge/transducer (eight wells)
- A partially removed FLUTE system prevented access for measurement (one well)
- Well is abandoned (one well)
- The piezometer casing was melted (one piezometer)
- Well inaccessible due to in-situ chemical oxidation (ISCO) field experiment activities (one well) and
- Pressure transducers installed in FLUTE wells were inoperable (seven wells)

Water Level Monitoring	First Quarter 2014
Number of locations scheduled	350
Number of locations monitored	331
Completeness value	95%

Percent completeness (% C) values presented in this summary were calculated using the following equation:

$$\% C = \frac{\text{Number of Valid (Usable) Measurements}}{\text{Number of Measurements Planned}} \times 100$$

##### 3.1.2 Groundwater Sample Collection

During the first quarter 2014 sampling event, 285 wells, seeps, or piezometers were scheduled for sampling. Of the locations scheduled for sampling, 158 wells or piezometers (55 percent)



were sampled. Samples were not collected at a number of locations because the wells or piezometers were either dry, contained inadequate water for sampling purposes, or the low-flow well equipment could not be installed.

A sampling completeness of 100 percent was achieved for those wells that could be sampled versus those that were scheduled or planned to be collected in the first quarter of 2014.

### 3.1.3 QA/QC Sample Collection

The QA/QC sample collection targets are listed in the QAPP (Haley & Aldrich, 2010). During the first quarter 2014, the QA/QC sample collection targets were met except where wells contained insufficient volume or were of inadequate quality for sampling.

QC Sample Type	Percent Complete
Duplicate samples	99%
Split samples	100%
MS/MSD samples	97%
Trip blanks	99%
Field blanks	98%
Equipment rinse blanks	98%

### 3.1.4 Water Quality Parameter Measurements

Water quality parameters (pH, oxidation reduction potential [ORP], dissolved oxygen [DO], electrical conductivity, and turbidity) are scheduled to be measured according to the WQSAP (Haley & Aldrich, 2010). All exceptions for the first quarter of 2014 sampling event are listed on Table 7 located in the main body of this report.

## 3.2 Analytical Data

All laboratories used for this program are certified by the California Department of Public Health Environmental Laboratory Accreditation Program.

### 3.2.1 Comparison with Historical Water Quality Data

The majority of analyte concentrations increased or decreased somewhat when compared to the results from the prior monitoring event, but most values were within the range of historical data. A summary of results is included in Section 3 of this report.

Verification sampling is conducted when there is a newly detected constituent of concern, or when a constituent of concern is detected above the Regulatory Reference Values (defined in Table 8 of the main body of this report) in samples collected from Regulated Unit Detection monitoring wells. Verification sampling consists of collecting a primary sample, field duplicate, split sample, equipment rinse sample (non-dedicated equipment only), and a field blank sample and analyzing each for the constituent(s) of concern.

Four monitoring wells were scheduled for verification sampling during first quarter 2014; however, all four wells contained insufficient water and were not sampled. Verification sampling of these four monitoring wells will carry over into third quarter 2014.

### 3.2.2 Laboratory Performance Comparison

Results of analyses across laboratories were comparable as indicated by the relative percent differences (RPDs) of split samples (Table B-1). The RPDs were calculated for each analyte detected by both the primary and split laboratories if the analytes were detected at a concentration exceeding five times their respective reporting limits (RLs). RPDs for the split samples are summarized on Table B-1.

$$RPD = \left| \frac{(X_1 - X_2)}{X_{ave}} \right| \times 100$$

$X_1$  = value of first result;

$X_2$  = value of second result; and

$X_{ave}$  = average concentration =  $((X_1 + X_2) / 2)$

All RPDs calculated for first quarter 2014 split samples were less than the project acceptance criterion of 35.

### 3.2.3 Field Duplicate Sample Precision

The RPDs of field duplicate samples are calculated for all analytes detected in both the primary and duplicate samples and are summarized on Table B-2. The RPDs were calculated for each analyte detected in both the primary and field duplicate samples if the analytes were detected at a concentration exceeding five times their RLs. The RPD values calculated for first quarter 2014 field duplicate sample analyses were acceptable and below the project acceptance criterion of 35 percent with the exception of trichloroethene in HAR-16. Both results were qualified as estimated (J) in the primary and field duplicate, per the Groundwater Monitoring QAPP (Haley & Aldrich, 2010).

### 3.2.4 Blank Accuracy

The method detection limits (MDLs) reported for analytes in field blanks, equipment rinse blanks, and trip blanks were compared to the RL requirements defined in the Groundwater Monitoring QAPP (Haley & Aldrich, 2010). As required by the project, the MDLs in the blank samples were less than the required RLs, with the following exceptions:

Constituent	QAPP RL Requirement	Laboratory MDL
pH	0.01 pH Units	0.1 pH Units

Although the MDLs listed above do not meet the QAPP RL criteria, they represent the laboratory's lowest achievable detection limits.

As defined in Table 9, the regulatory limit is 8.5 pH units for pH (California Secondary Maximum Contaminant Level [MCL]), which is significantly higher than the laboratory RL. Therefore, data usability is not affected.

### 3.2.5 Data Representativeness, Reproducibility, and Completeness

Data representativeness, reproducibility, and completeness of results were evaluated by verifying the following:

- Locations were sampled as scheduled
- Samples were properly collected and preserved (if required)
- Procedures to maintain the integrity of samples during shipment were followed
- Sample dilutions were properly conducted
- Chain-of-custody records were complete when submitted or changed appropriately and
- Laboratory QA/QC data were obtained for each sample submitted

Locations were sampled as scheduled except where wells contained insufficient water volume or where wells were inaccessible. All samples were preserved (where necessary) and shipped following acceptable procedures. Samples from wells with previous trichloroethene concentrations exceeding 3,000 micrograms per liter ( $\mu\text{g/L}$ ) were segregated during storage and shipment.

A few chain-of-custody forms were not completed satisfactorily. Because the laboratories were notified of the deficiencies immediately following sample submission, all samples submitted were identified correctly and analyzed according to the monitoring schedule. In order to minimize future errors, field personnel were notified of the chain-of-custody form deficiencies.

All samples were received appropriately, identified correctly, and analyzed according to the monitoring requirements.

Completeness is defined as the number of valid results (i.e., those not rejected) divided by the total number reported. Completeness was calculated for each method. Results were rejected for formaldehyde in HAR-24 and HAR-25; nitrate-NO<sub>3</sub> in RD-58A, RD-58B, and RD-58C; and radioisotopes in 15 samples. The percent completeness for all methods exceeded the project goal of ninety percent (90%), with only the three aforementioned parameters being less than 100%.

### **3.2.6 Data Usability Summary**

LDC provided a comprehensive data verification report for each data package that summarized laboratory and project criteria that were not met, and sample results requiring qualification due to QC discrepancies. The verification reports were reviewed by MWH to ensure the verification procedures as described in the QAPPs were followed. The final validated and flagged data were

reviewed by the project chemist and team to assess against the project data quality objectives (DQOs) to determine data usability.

### 3.2.6.1 Sample Data Reporting

Laboratory analytical reports contain laboratory specific data qualifiers. When an analysis was performed without dilution, the RL was based on the most recent MDL study conducted by the contract laboratory. The RL values for the dilution analyses were adjusted for the level of dilution performed. Values presented for target analytes detected at concentrations below the RL but above the MDL were flagged with a "J" as estimated values.

### 3.2.6.2 Data Qualifiers

The use of data qualifiers is intended to aid users in their interpretation of the sample results. Laboratory-specific data qualifiers were assigned by the laboratories to the reported results in accordance with each laboratory's standard operating procedures. However, some data qualifiers used by the laboratories do not correspond with standard EPA guidance as referenced in this document. The recommended EPA data qualifiers should preclude the use of the laboratory-specific qualifiers so that comparability of the reported results can be achieved if future analyses are performed at other laboratories.

The following is a summary of the data verification/validation qualifiers used in the review:

<u>Qualifier</u>	<u>Description</u>
J	The result is estimated.
R	The result is rejected.
U	The result is not detected above the MDL or RL.
UJ	The result is not detected; however, the MDL or RL is qualified as estimated.

## 3.3 Summary

All final qualified results summarized on Table B-3 were found to be compliant with the DQOs for the project, and data that have not been rejected are usable for the intended purpose as specified in the WQSAP (Haley & Aldrich, 2010).

#### 4.0 REFERENCES

- Haley & Aldrich, Inc., 2010. "Site-Wide Water Quality Sampling and Analysis Plan," Santa Susana Field Laboratory, Ventura County, California, Revision 1, December.
- U.S. Environmental Protection Agency (USEPA), 2001. "USEPA *Contract Laboratory Program National Functional Guidelines for Low Concentration Organic Data Review*", Office of Solid Waste and Emergency Response (OSWER) 9240.1-34, EPA-540-R-00-006, June.
- , 2004a. "Multi-Agency Radiological Laboratory Analytical Protocols Manual (MARLAP)." July.
- , 2004b. "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," OSWER 9240.1-35, EPA 540-R-04-004, October.
- , 2008. "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," OSWER 9240.1-46, USEPA-540-R-08-01, June.

**APPENDIX B**  
**TABLES**

**TABLE B-1**  
**SUMMARY OF FIRST QUARTER 2014 SPLIT SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Anaytical Method	Parameter	Split Sample Result	Primary Sample Result	Units	RPD
HAR-16	1/29/2014 8:33	180.1	Turbidity	2.57	2.60	NTU	NA
HAR-16	1/29/2014 8:33	300	Chloride	54.3	59	mg/L	8.3%
HAR-16	1/29/2014 8:33	300	Fluoride	0.34 J	0.34 J	mg/L	NA
HAR-16	1/29/2014 8:33	300	Nitrate-NO3	28200	29000	ug/L	2.8%
HAR-16	1/29/2014 8:33	300	Sulfate	53.9	63	mg/L	NA
HAR-16	1/29/2014 8:33	314	Perchlorate	330	320	ug/L	3.1%
HAR-16	1/29/2014 8:33	524.2	1,2,3-Trichloropropane	0.0051	0.0043 J	ug/L	NA
HAR-16	1/29/2014 8:33	6020	Arsenic	0.000549 J	0.00057 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Arsenic, Dissolved	0.000594 J	0.00059 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Barium	0.0168	0.017	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Barium, Dissolved	0.0166	0.018	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Chromium	0.000251 J	0.0005 U	mg/L	ND
HAR-16	1/29/2014 8:33	6020	Cobalt	0.0002 U	0.000059 J	mg/L	ND
HAR-16	1/29/2014 8:33	6020	Nickel	0.000669 J	0.00088 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Nickel, Dissolved	0.000683 J	0.0012 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Selenium	0.00127 J	0.0012 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Selenium, Dissolved	0.00127 J	0.0014 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Vanadium	0.0013 J	0.0013 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Vanadium, Dissolved	0.00118 J	0.0012 J	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Zinc	0.0568	0.058	mg/L	NA
HAR-16	1/29/2014 8:33	6020	Zinc, Dissolved	0.055	0.064	mg/L	NA
HAR-16	1/29/2014 8:33	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.9 J	0.84 U	pg/L	ND
HAR-16	1/29/2014 8:33	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.67 J	0.50 U	pg/L	ND
HAR-16	1/29/2014 8:33	8290	2,3,7,8-TCDD	1.1 J	2.2 U	pg/L	ND
HAR-16	1/29/2014 8:33	8290	Octachlorodibenzofuran	1.54 U	1.4 J	pg/L	ND
HAR-16	1/29/2014 8:33	1625M	n-Nitrosodimethylamine	6.1 J	8.5	ug/L	32.9%
HAR-16	1/29/2014 8:33	2320B	Total Alkalinity	114	120	mg/L	5.1%
HAR-16	1/29/2014 8:33	2510B	Specific conductivity	567	550	m	3.0%
HAR-16	1/29/2014 8:33	2540C	Total Dissolved Solids	381	360	mg/L	5.7%



**TABLE B-1**  
**SUMMARY OF FIRST QUARTER 2014 SPLIT SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Anaytical Method	Parameter	Split Sample Result	Primary Sample Result	Units	RPD
HAR-16	1/29/2014 8:33	6010B	Calcium	46.4	45	mg/L	3.1%
HAR-16	1/29/2014 8:33	6010B	Calcium, Dissolved	46.4	47	mg/L	1.3%
HAR-16	1/29/2014 8:33	6010B	Iron	0.0811 J	0.18	mg/L	NA
HAR-16	1/29/2014 8:33	6010B	Magnesium	8.43	10	mg/L	NA
HAR-16	1/29/2014 8:33	6010B	Magnesium, Dissolved	8.52	9.7	mg/L	NA
HAR-16	1/29/2014 8:33	6010B	Manganese	0.0014 J	0.0028 J	mg/L	NA
HAR-16	1/29/2014 8:33	6010B	Manganese, Dissolved	0.000234 J	0.00049 J	mg/L	NA
HAR-16	1/29/2014 8:33	6010B	Potassium	0.99	1.3 J	mg/L	NA
HAR-16	1/29/2014 8:33	6010B	Potassium, Dissolved	1.02	1.2 J	mg/L	NA
HAR-16	1/29/2014 8:33	6010B	Sodium	48.4	58	mg/L	18%
HAR-16	1/29/2014 8:33	6010B	Sodium, Dissolved	47.4	54	mg/L	13%
HAR-16	1/29/2014 8:33	6010B	Strontium	0.199	0.21	mg/L	5.4%
HAR-16	1/29/2014 8:33	6010B	Strontium, Dissolved	0.197	0.2	mg/L	1.5%
HAR-16	1/29/2014 8:33	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	1.10 J	8.40 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B	1,1,2-Trichloroethane	0.51 J	5.40 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B	1,1-Dichloroethane	0.95 J	4.40 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B	1,1-Dichloroethene	9.5	7.4 J	ug/L	NA
HAR-16	1/29/2014 8:33	8260B	Carbon Tetrachloride	0.24 J	3.80 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B	Chloroform	2.00	3.20 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B	cis-1,2-Dichloroethene	57	53	ug/L	NA
HAR-16	1/29/2014 8:33	8260B	Tetrachloroethene	4.40	4.00 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B	trans-1,2-Dichloroethene	0.41 J	3.00 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B	Trichloroethene	4000 J	2700 J	ug/L	<b>39%</b>
HAR-16	1/29/2014 8:33	8260B	Trichlorofluoromethane	9.30	5.80 U	ug/L	ND
HAR-16	1/29/2014 8:33	8260B SIM	1,4-Dioxane	8.8	8	ug/L	NA
HAR-16	1/29/2014 8:33	8270C	n-Nitrosodimethylamine	9.88	7 J	ug/L	NA
HAR-16	1/29/2014 8:33	9040B	pH	6.40	6.60	Units	3.1%
HAR-16	1/29/2014 8:33	DV-WC-0077	Hydrazine	0.18	0.67 U	ug/L	ND
OS-10	2/18/2014 11:46	300	Fluoride	0.56	0.50	mg/L	NA

**TABLE B-1**  
**SUMMARY OF FIRST QUARTER 2014 SPLIT SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Split Sample Result	Primary Sample Result	Units	RPD
OS-10	2/18/2014 11:46	908	Uranium, Dissolved	0.43 U	0.19 J	pCi/L	ND
OS-10	2/18/2014 11:46	908	Uranium-233/234, Dissolved	0.20 U	0.32 J	pCi/L	ND
RD-100	1/24/2014 9:48	300	Sulfate	611	640	mg/L	4.6%
RD-67	1/21/2014 11:10	1625M	n-Nitrosodimethylamine	0.005	0.01 U	ug/L	ND
RD-67	1/21/2014 11:10	8260B	Acetone	10 UJ	6.50 J	ug/L	ND

RPDs are only calculated when an analyte is detected in both the primary and split samples at concentrations exceeding five times their RLs.

Results in bold exceed the acceptance criterion of 35.

NOTES AND ABBREVIATIONS

µg/L - micrograms per liter

mg/L - milligrams per liter

pCi/L - picocuries per liter

pg/L - picograms per liter

NA - not applicable

ND - result not detected in primary and/or split samples

RPD - relative percent difference

SIM - selective ion monitoring

J - the result is estimated

U - the result is not detected above the method detection limit (MDL) or reporting limit (RL)

UJ - the result is not detected; however, the MDL/RL is qualified as estimated

**TABLE B-2**  
**SUMMARY OF FIRST QUARTER 2014 FIELD DUPLICATE SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Duplicate Sample		Primary Sample		Units	RPD
				Result		Result			
OS-10	2014-02-18 11:46:00	300.0	Fluoride	0.48	J	0.5		mg/L	NA
OS-10	2014-02-18 11:46:00	908.0	Uranium-233/234, Dissolved	0.57	J	0.32	J	pCi/L	NA
OS-10	2014-02-18 11:46:00	908.0	Uranium-238, Dissolved	0.095	UJ	0.19	J	pCi/L	ND
RD-03	2014-01-22 13:31:00	300.0	Chloride	65		56		mg/L	NA
RD-03	2014-01-22 13:31:00	300.0	Fluoride	0.38	J	0.38	J	mg/L	NA
RD-03	2014-01-22 13:31:00	300.0	Sulfate	150		120		mg/L	NA
RD-03	2014-01-22 13:31:00	350.1	Ammonia-N	0.034	J	0.036	J	mg/L	NA
RD-03	2014-01-22 13:31:00	8290	Octachlorodibenzofuran	1.1	J	0.63	U	pg/L	ND
RD-03	2014-01-22 13:31:00	9012	Cyanides	0.0034	J	0.0026	J	mg/L	NA
RD-03	2014-01-22 13:31:00	9040B	pH	7.18		7.18		pH Units	0.0%
RD-11	2014-01-29 08:38:00	300.0	Fluoride	0.56		0.56		mg/L	NA
RD-11	2014-01-29 08:38:00	350.1	Ammonia-N	0.63		0.63		mg/L	NA
RD-11	2014-01-29 08:38:00	4500	Sulfide	0.037	J	0.042	J	mg/L	NA
RD-11	2014-01-29 08:38:00	6020	Barium	0.02		0.02		mg/L	NA
RD-11	2014-01-29 08:38:00	6020	Barium, Dissolved	0.02		0.02		mg/L	NA
RD-11	2014-01-29 08:38:00	6020	Lead, Dissolved	0.00	U	0.00	J	mg/L	ND
RD-11	2014-01-29 08:38:00	6020	Nickel	0.00074	J	0.00074	J	mg/L	NA
RD-11	2014-01-29 08:38:00	6020	Nickel, Dissolved	0.00047	J	0.00067	J	mg/L	NA
RD-11	2014-01-29 08:38:00	6020	Zinc	0.0028	J	0.0028	J	mg/L	NA
RD-11	2014-01-29 08:38:00	6020	Zinc, Dissolved	0.0023	J	0.0040	J	mg/L	NA
RD-11	2014-01-29 08:38:00	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.71	U	1.20	J	pg/L	ND
RD-11	2014-01-29 08:38:00	8290	dioxin	0.98	U	2.80	J	pg/L	ND
RD-11	2014-01-29 08:38:00	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.84	U	1.60	J	pg/L	ND
RD-11	2014-01-29 08:38:00	8290	Octachlorodibenzofuran	1.10	U	13.00	J	pg/L	ND
RD-11	2014-01-29 08:38:00	8290	Octachlorodibenzo-p-dioxin	3.80	U	26.00	J	pg/L	ND
RD-11	2014-01-29 08:38:00	8270C	Diethyl phthalate	1.3	J	1.3	J	µg/L	NA
RD-11	2014-01-29 08:38:00	9040B	pH	8.26		8.19		pH Units	0.85%
RD-13	2014-02-11 13:48:00	300.0	Fluoride	0.41	J	0.41	J	mg/L	NA
RD-13	2014-02-11 13:48:00	900.0	Gross Alpha, Dissolved	22	J	6	J	pCi/L	NA
RD-13	2014-02-11 13:48:00	900.0	Gross Beta, Dissolved	3.7	J	4.9		pCi/L	NA

**TABLE B-2**  
**SUMMARY OF FIRST QUARTER 2014 FIELD DUPLICATE SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Duplicate Sample		Primary Sample		Units	RPD
				Result		Result			
RD-13	2014-02-11 13:48:00	906.0	Tritium	180.00	U	540.00		pCi/L	ND
RD-13	2014-02-11 13:48:00	908.0	Uranium-233/234, Dissolved	2.9		2.4	J	pCi/L	NA
RD-13	2014-02-11 13:48:00	908.0	Uranium-238, Dissolved	1.7		1.5	J	pCi/L	NA
RD-13	2014-02-11 13:48:00	908.0	Uranium-238, Particulate	0.07	UJ	0.24	J	pCi/L	ND
RD-13	2014-02-11 13:48:00	6020	Arsenic	0.00090	J	0.00070	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Arsenic, Dissolved	0.00072	J	0.00077	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Barium	0.041		0.04		mg/L	2.5%
RD-13	2014-02-11 13:48:00	6020	Barium, Dissolved	0.043		0.042		mg/L	2.4%
RD-13	2014-02-11 13:48:00	6020	Copper, Dissolved	0.00	J	0.00	U	mg/L	ND
RD-13	2014-02-11 13:48:00	6020	Lead	0.00019	J	0.00029	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Lead, Dissolved	0.00	U	0.00	J	mg/L	ND
RD-13	2014-02-11 13:48:00	6020	Nickel	0.00052	J	0.00041	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Nickel, Dissolved	0.00085	J	0.00051	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Selenium	0.00110	J	0.00077	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Selenium, Dissolved	0.00095	J	0.0011	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Vanadium	0.0016	J	0.0016	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Vanadium, Dissolved	0.0015	J	0.0014	J	mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Zinc	0.07		0.071		mg/L	NA
RD-13	2014-02-11 13:48:00	6020	Zinc, Dissolved	0.071		0.069		mg/L	NA
RD-18	2014-02-07 09:50:00	300.0	Fluoride	0.32	J	0.33	J	mg/L	NA
RD-18	2014-02-07 09:50:00	900.0	Gross Alpha, Dissolved	6.1	J	8.6	J	pCi/L	NA
RD-18	2014-02-07 09:50:00	900.0	Gross Beta, Dissolved	4.6		4.5	J	pCi/L	NA
RD-18	2014-02-07 09:50:00	904.0	Radium-228, Dissolved	1.80	J	1.40	J	pCi/L	NA
RD-18	2014-02-07 09:50:00	908.0	Uranium-233/234, Dissolved	4.3	J	4.2		pCi/L	NA
RD-18	2014-02-07 09:50:00	908.0	Uranium-235, Dissolved	0.34	J	0.11	U	pCi/L	ND
RD-18	2014-02-07 09:50:00	908.0	Uranium-238, Dissolved	3.4	J	4		pCi/L	NA
RD-18	2014-02-07 09:50:00	6020	Antimony	0.00	U	0.00	J	mg/L	ND
RD-18	2014-02-07 09:50:00	6020	Antimony, Dissolved	0.00	U	0.00	J	mg/L	ND
RD-18	2014-02-07 09:50:00	6020	Arsenic	0.0015	J	0.0015	J	mg/L	NA
RD-18	2014-02-07 09:50:00	6020	Arsenic, Dissolved	0.0016	J	0.0016	J	mg/L	NA

**TABLE B-2**  
**SUMMARY OF FIRST QUARTER 2014 FIELD DUPLICATE SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Duplicate Sample		Primary Sample		Units	RPD
				Result		Result			
RD-18	2014-02-07 09:50:00	6020	Barium	0.059		0.058		mg/L	1.7%
RD-18	2014-02-07 09:50:00	6020	Barium, Dissolved	0.056		0.058		mg/L	3.5%
RD-18	2014-02-07 09:50:00	6020	Copper, Dissolved	0.00	U	0.00	J	mg/L	ND
RD-18	2014-02-07 09:50:00	6020	Nickel	0.001	J	0.001	J	mg/L	NA
RD-18	2014-02-07 09:50:00	6020	Nickel, Dissolved	0.001	J	0.0014	J	mg/L	NA
RD-18	2014-02-07 09:50:00	6020	Vanadium	0.0035	J	0.0035	J	mg/L	NA
RD-18	2014-02-07 09:50:00	6020	Vanadium, Dissolved	0.0034	J	0.0034	J	mg/L	NA
RD-18	2014-02-07 09:50:00	6020	Zinc	0.24		0.24		mg/L	0.0%
RD-18	2014-02-07 09:50:00	6020	Zinc, Dissolved	0.24		0.25		mg/L	4.1%
RD-18	2014-02-07 09:50:00	6010B	Sodium	41		41		mg/L	0.0%
RD-18	2014-02-07 09:50:00	6010B	Sodium, Dissolved	40		40		mg/L	0.0%
RD-32	2014-01-23 13:19:00	8270C SIM	Fluoranthene	0.00	U	0.02	J	µg/L	ND
RD-32	2014-01-23 13:19:00	8270C SIM	Pyrene	0.01	U	0.05	J	µg/L	ND
RD-36C	2014-01-28 11:10:00	300.0	Fluoride	0.34	J	0.39	J	mg/L	NA
RD-36C	2014-01-28 11:10:00	350.1	Ammonia-N	0.07	J	0.05	J	mg/L	NA
RD-36C	2014-01-28 11:10:00	8260B	1,2-Dichloro-1,1,2-trifluoroethane	1.3	J	1.3	J	µg/L	NA
RD-36C	2014-01-28 11:10:00	8260B	cis-1,2-Dichloroethene	13		13		µg/L	0.0%
RD-36C	2014-01-28 11:10:00	8260B	Toluene	0.18	J	0.18	J	µg/L	NA
RD-36C	2014-01-28 11:10:00	8260B	trans-1,2-Dichloroethene	0.44	J	0.27	J	µg/L	NA
RD-36C	2014-01-28 11:10:00	8260B SIM	1,4-Dioxane	3.1		2.6		µg/L	NA
RD-36C	2014-01-28 11:10:00	8270C	bis(2-Ethylhexyl) phthalate	1.4	J	1.1	J	µg/L	NA
RD-36C	2014-01-28 11:10:00	8270C	Diethyl phthalate	0.38	U	0.79	J	µg/L	ND
RD-36C	2014-01-28 11:10:00	9040B	pH	6.18		6.17		pH Units	0.16%
RD-44	2014-01-21 10:27:00	6020	Barium	0.016		0.016		mg/L	0.0%
RD-44	2014-01-21 10:27:00	6020	Barium, Dissolved	0.015		0.016		mg/L	6.5%
RD-44	2014-01-21 10:27:00	6020	Lead	0.00	U	0.00	J	mg/L	ND
RD-44	2014-01-21 10:27:00	6020	Molybdenum	0.0016	J	0.0016	J	mg/L	NA
RD-44	2014-01-21 10:27:00	6020	Molybdenum, Dissolved	0.0015	J	0.0016	J	mg/L	NA
RD-44	2014-01-21 10:27:00	6020	Nickel	0.00093	J	0.00062	J	mg/L	NA
RD-44	2014-01-21 10:27:00	6020	Nickel, Dissolved	0.00089	J	0.00060	J	mg/L	NA

**TABLE B-2**  
**SUMMARY OF FIRST QUARTER 2014 FIELD DUPLICATE SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Duplicate Sample		Primary Sample		Units	RPD
				Result		Result			
RD-44	2014-01-21 10:27:00	6020	Thallium	0.00	U	0.00	J	mg/L	ND
RD-73	2014-02-03 10:34:00	6020	Arsenic	0.0014	J	0.0014	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Barium	0.065		0.065		mg/L	0.0%
RD-73	2014-02-03 10:34:00	6020	Barium, Dissolved	0.059	J	0.058	J	mg/L	1.7%
RD-73	2014-02-03 10:34:00	6020	Cadmium	0.00013	J	0.00013	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Cobalt	0.0011	J	0.0011	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Cobalt, Dissolved	0.001	J	0.0012	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Lead	0.00084	J	0.00081	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Manganese	1.3		1.3		mg/L	0.0%
RD-73	2014-02-03 10:34:00	6020	Manganese, Dissolved	1.4		1.4		mg/L	0.0%
RD-73	2014-02-03 10:34:00	6020	Molybdenum	0.0028	J	0.0028	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Molybdenum, Dissolved	0.0030	J	0.0028	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Nickel	0.0022		0.0026		mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Nickel, Dissolved	0.00		0.00	U	mg/L	ND
RD-73	2014-02-03 10:34:00	6020	Thallium	0.00	U	0.00	J	mg/L	ND
RD-73	2014-02-03 10:34:00	6020	Vanadium	0.00094	J	0.00092	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Vanadium, Dissolved	0.00074	J	0.00054	J	mg/L	NA
RD-73	2014-02-03 10:34:00	6020	Zinc	0.21		0.20		mg/L	4.9%
RD-73	2014-02-03 10:34:00	6020	Zinc, Dissolved	0.11		0.11		mg/L	0.0%
RD-73	2014-02-03 10:34:00	6860	Perchlorate	6.3		6.4		µg/L	1.6%
RD-73	2014-02-03 10:34:00	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.12	J	0.09	UJ	pg/L	ND
RD-73	2014-02-03 10:34:00	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.12	U	0.15	J	pg/L	ND
RD-73	2014-02-03 10:34:00	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.13	U	0.09	J	pg/L	ND
RD-73	2014-02-03 10:34:00	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.20	U	0.13	J	pg/L	ND
RD-73	2014-02-03 10:34:00	6010B	Boron	0.35		0.36		mg/L	2.8%
RD-73	2014-02-03 10:34:00	6010B	Boron, Dissolved	0.35		0.36		mg/L	2.8%
RD-73	2014-02-03 10:34:00	6010B	Iron	4.7		4.5		mg/L	4.3%
RD-73	2014-02-03 10:34:00	6010B	Magnesium	29		30		mg/L	3.4%
RD-73	2014-02-03 10:34:00	6010B	Magnesium, Dissolved	30		31		mg/L	3.3%
RD-73	2014-02-03 10:34:00	6010B	Sodium	87		89		mg/L	2.3%

**TABLE B-2**  
**SUMMARY OF FIRST QUARTER 2014 FIELD DUPLICATE SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Duplicate Sample		Primary Sample		Units	RPD
				Result		Result			
RD-73	2014-02-03 10:34:00	6010B	Sodium, Dissolved	86		89		mg/L	3.4%
RD-73	2014-02-03 10:34:00	8015B	Gasoline Range Organics (C6-C12)	1100	J	1100	J	µg/L	0.0%
RD-73	2014-02-03 10:34:00	8151A	MCP	71	J	57	J	µg/L	NA
RD-73	2014-02-03 10:34:00	8260B	1,1-Dichloroethane	16		16	J	µg/L	NA
RD-73	2014-02-03 10:34:00	8260B	1,1-Dichloroethene	180		180		µg/L	0.0%
RD-73	2014-02-03 10:34:00	8260B	1,2-Dichloroethane	5.00		2.60	U	µg/L	ND
RD-73	2014-02-03 10:34:00	8260B	Benzene	7	J	6.7	J	µg/L	NA
RD-73	2014-02-03 10:34:00	8260B	Chloroform	2.60	J	3.20	U	µg/L	ND
RD-73	2014-02-03 10:34:00	8260B	cis-1,2-Dichloroethene	210		210		µg/L	0.0%
RD-73	2014-02-03 10:34:00	8260B	Trichloroethene	1700		1700		µg/L	0.0%
RD-73	2014-02-03 10:34:00	8260B	Vinyl chloride	7.3	J	7.2	J	µg/L	NA
RD-73	2014-02-03 10:34:00	8270C SIM	1-Methyl naphthalene	0.1	J	0.11	J	µg/L	NA
RD-73	2014-02-03 10:34:00	8270C SIM	bis(2-Ethylhexyl) phthalate	0.51	J	0.18	J	µg/L	NA
RD-73	2014-02-03 10:34:00	8270C SIM	Fluorene	0.02	U	0.02	J	µg/L	ND
RD-73	2014-02-03 10:34:00	8270C SIM	Naphthalene	0.12	J	0.11	J	µg/L	NA
RD-77	2014-01-30 12:21:00	180.1	Turbidity	0.20	U	0.22		NTU	ND
RD-77	2014-01-30 12:21:00	300.0	Chloride	36		36		mg/L	0.0%
RD-77	2014-01-30 12:21:00	300.0	Fluoride	0.28	J	0.28	J	mg/L	NA
RD-77	2014-01-30 12:21:00	300.0	Sulfate	73		74		mg/L	NA
RD-77	2014-01-30 12:21:00	314.0	Perchlorate	200		200		µg/L	0.0%
RD-77	2014-01-30 12:21:00	6020	Arsenic	0.017		0.017		mg/L	NA
RD-77	2014-01-30 12:21:00	6020	Arsenic, Dissolved	0.018		0.018		mg/L	NA
RD-77	2014-01-30 12:21:00	6020	Barium	0.046		0.045		mg/L	2.2%
RD-77	2014-01-30 12:21:00	6020	Barium, Dissolved	0.047		0.049		mg/L	4.2%
RD-77	2014-01-30 12:21:00	6020	Manganese	0.0011	J	0.0011	J	mg/L	NA
RD-77	2014-01-30 12:21:00	6020	Manganese, Dissolved	0.00086	J	0.0011	J	mg/L	NA
RD-77	2014-01-30 12:21:00	6020	Nickel	0.0011	J	0.0011	J	mg/L	NA
RD-77	2014-01-30 12:21:00	6020	Nickel, Dissolved	0.0012	J	0.0014	J	mg/L	NA
RD-77	2014-01-30 12:21:00	6020	Thallium, Dissolved	0.00	U	0.00	J	mg/L	ND
RD-77	2014-01-30 12:21:00	6020	Zinc	0.014	J	0.013	J	mg/L	NA

**TABLE B-2**  
**SUMMARY OF FIRST QUARTER 2014 FIELD DUPLICATE SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Duplicate Sample		Primary Sample		Units	RPD
				Result		Result			
RD-77	2014-01-30 12:21:00	6020	Zinc, Dissolved	0.014	J	0.016	J	mg/L	NA
RD-77	2014-01-30 12:21:00	2320B	Total Alkalinity	220		220		mg/L	0.0%
RD-77	2014-01-30 12:21:00	2510B	Specific conductivity	600		640		µmhos/cm	6.5%
RD-77	2014-01-30 12:21:00	2540C	Total Dissolved Solids	430		430		mg/L	0.0%
RD-77	2014-01-30 12:21:00	6010B	Boron	0.15		0.15		mg/L	NA
RD-77	2014-01-30 12:21:00	6010B	Boron, Dissolved	0.15		0.15		mg/L	NA
RD-77	2014-01-30 12:21:00	6010B	Calcium	87		88		mg/L	1.1%
RD-77	2014-01-30 12:21:00	6010B	Calcium, Dissolved	88		87		mg/L	1.1%
RD-77	2014-01-30 12:21:00	6010B	Magnesium	17		17		mg/L	0.0%
RD-77	2014-01-30 12:21:00	6010B	Magnesium, Dissolved	17		17		mg/L	0.0%
RD-77	2014-01-30 12:21:00	6010B	Potassium	3.4	J	3.4	J	mg/L	NA
RD-77	2014-01-30 12:21:00	6010B	Potassium, Dissolved	3.3	J	3.3	J	mg/L	NA
RD-77	2014-01-30 12:21:00	6010B	Sodium	36		36		mg/L	0.0%
RD-77	2014-01-30 12:21:00	6010B	Sodium, Dissolved	36		35		mg/L	2.8%
RD-77	2014-01-30 12:21:00	6010B	Strontium	0.29		0.29		mg/L	0.0%
RD-77	2014-01-30 12:21:00	6010B	Strontium, Dissolved	0.29		0.29		mg/L	0.0%
RD-77	2014-01-30 12:21:00	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	6.1	J	5.6	J	µg/L	NA
RD-77	2014-01-30 12:21:00	8260B	1,1-Dichloroethane	5.3	J	5.1	J	µg/L	NA
RD-77	2014-01-30 12:21:00	8260B	1,1-Dichloroethene	73		70		µg/L	4.2%
RD-77	2014-01-30 12:21:00	8260B	cis-1,2-Dichloroethene	120		120		µg/L	0.0%
RD-77	2014-01-30 12:21:00	8260B	Trichloroethene	2700		2500		µg/L	7.7%
RD-77	2014-01-30 12:21:00	8260B SIM	1,4-Dioxane	18		18		µg/L	0.0%
RD-77	2014-01-30 12:21:00	9040B	pH	7.14		7.16		pH Units	0.28%

RPDs are only calculated when an analyte is detected in both the primary and duplicate samples at concentrations exceeding five times their RLs. Results in bold exceed the acceptance criterion of 35.



**TABLE B-2**  
**SUMMARY OF FIRST QUARTER 2014 FIELD DUPLICATE SAMPLE RESULTS**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Analytical Method	Parameter	Duplicate Sample Result	Primary Sample Result	Units	RPD
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NOTES AND ABBREVIATIONS

µg/L - micrograms per liter

µmhos/cm - microhoms per centimeter

mg/L - milligrams per liter

NTU - nephelometric turbidity units

pCi/L - picocuries per liter

pg/L - picograms per liter

NA - not applicable

ND - result not detected in primary and field duplicate samples

RPD - relative percent difference

SIM - selective ion monitoring

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
C-1	2014-02-03 08:41:00	Primary Sample	6020	Antimony, Dissolved	0.00041	mg/L	Primary Result	J	U	V	F	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Arsenic	0.003	mg/L	Primary Result	J	J	V	TR	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Arsenic, Dissolved	0.0027	mg/L	Primary Result	J	J	V	TR	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Barium, Dissolved	0.052	mg/L	Primary Result	J	J	V	A	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Molybdenum	0.0034	mg/L	Primary Result	J	J	V	TR	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Molybdenum, Dissolved	0.0038	mg/L	Primary Result	J	J	V	TR	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Thallium, Dissolved	0.00016	mg/L	Primary Result	J	J	V	TR	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Vanadium	0.00056	mg/L	Primary Result	J	J	V	TR	31380C
C-1	2014-02-03 08:41:00	Primary Sample	6020	Zinc, Dissolved	0.0049	mg/L	Primary Result	JB	U	V	B; F	31380C
C-1	2014-02-03 08:41:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.41	pg/L	Primary Result	JBQC	U	IV	B	31612J
C-1	2014-02-03 08:41:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.72	pg/L	Primary Result	JB	U	IV	B	31612J
C-1	2014-02-03 08:41:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.18	pg/L	Primary Result	JBQC	U	IV	B	31612J
C-1	2014-02-03 08:41:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.13	pg/L	Primary Result	U	UJ	IV	C	31612J
C-1	2014-02-03 08:41:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzofuran	0.2	pg/L	Primary Result	JQC	J	IV	TR	31612J
C-1	2014-02-03 08:41:00	Primary Sample	8290	Octachlorodibenzofuran	0.58	pg/L	Primary Result	JBQC	U	IV	B	31612J
C-1	2014-02-03 08:41:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	4.5	pg/L	Primary Result	JBQC	U	IV	B; F	31612J
C-1	2014-02-03 08:41:00	Primary Sample	8260B	1,1-Dichloroethane	27	µg/L	Primary Result	J	J	V	TR	31380C
C-1	2014-02-03 08:41:00	Primary Sample	8260B	Acetone	500	µg/L	Primary Result	JB	U	V	B	31380C
C-1	2014-02-03 08:41:00	Primary Sample	8260B	Vinyl chloride	32	µg/L	Primary Result	J	J	V	TR	31380C
ES-29	2014-01-31 10:36:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	J	J	V	S; TR	31380B
ES-29	2014-01-31 10:36:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380B
ES-29	2014-01-31 10:36:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.16	µg/L	Primary Result	J	J	V	S; TR	31380B
ES-29	2014-01-31 10:36:00	Primary Sample	8260B	Trichloroethene	6.2	µg/L	Primary Result	J	J	V	S	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Antimony	0.00085	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Arsenic	0.001	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Arsenic, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Chromium, Dissolved	0.00086	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Copper	0.00094	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Molybdenum	0.0027	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Molybdenum, Dissolved	0.0025	mg/L	Primary Result	JB	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Thallium	0.00014	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Vanadium	0.0013	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	6020	Vanadium, Dissolved	0.0015	mg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	0.22	µg/L	Primary Result	J	J	V	TR	31380B
ES-30	2014-01-31 11:23:00	Primary Sample	8270C SIM	Diethyl phthalate	10	µg/L	Primary Result	JB	U	V	B	31380B
FDP-835	2014-02-17 09:49:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31419G
HAR-01	2014-02-03 08:31:00	Primary Sample	350.1	Ammonia-N	0.072	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	4500	Sulfide	0.007	mg/L	Primary Result	U	UJ	V	Q	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Arsenic	0.001	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Arsenic, Dissolved	0.00086	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Barium, Dissolved	0.032	mg/L	Primary Result	J	J	V	A	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Cadmium	0.00016	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Cadmium, Dissolved	0.00016	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Chromium	0.0026	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Chromium, Dissolved	0.0025	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Lead, Dissolved	0.00023	mg/L	Primary Result	J	J	V	TR	31380C

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Molybdenum	0.0015	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Molybdenum, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Nickel	0.00081	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Nickel, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Vanadium	0.0039	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	6020	Vanadium, Dissolved	0.0039	mg/L	Primary Result	J	J	V	TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.4	pg/L	Primary Result	JBQC	U	IV	B	31612J
HAR-01	2014-02-03 08:31:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.13	pg/L	Primary Result	JQC	J	IV	C; TR	31612J
HAR-01	2014-02-03 08:31:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.46	pg/L	Primary Result	JQC	J	IV	TR	31612J
HAR-01	2014-02-03 08:31:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.21	pg/L	Primary Result	JQC	J	IV	TR	31612J
HAR-01	2014-02-03 08:31:00	Primary Sample	8290	Octachlorodibenzofuran	1.9	pg/L	Primary Result	JBQC	U	IV	B	31612J
HAR-01	2014-02-03 08:31:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	6.8	pg/L	Primary Result	JB	U	IV	B	31612J
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	4,4'-DDD	0.0036	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	4,4'-DDE	0.0036	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	4,4'-DDT	0.007	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Aldrin	0.0029	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	alpha-BHC	0.0025	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	beta-BHC	0.0042	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Chlordane	0.067	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Chlorobenzilate	0.02	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	delta-BHC	0.0028	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Diallate	0.091	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Dieldrin	0.003	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Endosulfan I	0.0028	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Endosulfan II	0.0033	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Endosulfan sulfate	0.0027	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Endrin	0.0038	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Endrin aldehyde	0.0042	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	gamma-BHC	0.0032	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Heptachlor	0.0036	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Heptachlor epoxide	0.0036	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Kepone	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	p,p'-Methoxychlor	0.0062	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8081A	Toxaphene	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,1,1,2-Tetrachloroethane	0.21	µg/L	Primary Result	U	UJ	V	S; Q	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,1,2,2-Tetrachloroethane	0.21	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,2-Dichlorobenzene	0.15	µg/L	Primary Result	U	UJ	V	S; Q	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,2-Dichloropropane	0.18	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,3-Dichlorobenzene	0.13	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	1,4-Dichlorobenzene	0.16	µg/L	Primary Result	U	UJ	V	S; Q	31380C

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	2-Hexanone	1.7	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; T; S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Acetonitrile	9.6	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Allyl chloride	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Bromodichloromethane	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Bromoform	0.19	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Bromomethane	0.21	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Carbon Disulfide	0.45	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Chlorobenzene	0.17	µg/L	Primary Result	U	UJ	V	S; Q	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Chloroethane	0.41	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Chloroform	0.21	µg/L	Primary Result	J	J	V	S; TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Chloromethane	0.3	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Chloroprene	0.21	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	cis-1,2-Dichloroethene	2.3	µg/L	Primary Result		J	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	cis-1,3-Dichloropropene	0.16	µg/L	Primary Result	U	UJ	V	S; Q	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Dibromochloromethane	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Dibromomethane	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Dichlorodifluoromethane	0.31	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Ethyl cyanide	3.7	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Ethyl methacrylate	0.86	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Iodomethane	0.23	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Isobutanol	37	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Isopropanol	13	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Methacrylonitrile	1.6	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Methyl isobutyl ketone (MIBK)	0.98	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Methyl methacrylate	1.1	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Styrene	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Tetrachloroethene	0.29	µg/L	Primary Result	J	J	V	S; TR	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	trans-1,3-Dichloropropene	0.19	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	trans-1,4-Dichloro-2-butene	0.8	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Vinyl acetate	0.94	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-01	2014-02-03 08:31:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	V	S	31380C
HAR-16	2014-01-29 08:33:00	Primary Sample	300.0	Fluoride	0.34	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Split Sample	300.0	Fluoride	0.342	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Primary Sample	524.2	1,2,3-Trichloropropane	0.0043	µg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Arsenic	0.00057	mg/L	Primary Result	J	J	V	TR	31361D

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Arsenic, Dissolved	0.00059	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Cobalt	0.000059	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Nickel	0.00088	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Nickel, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Selenium	0.0012	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Selenium, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Vanadium	0.0013	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6020	Vanadium, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.799	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.745	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.9	pg/L	Primary Result	J	J	V	TR	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.301	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.521	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.666	pg/L	Primary Result	JQ	J	V	TR	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1.72	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,7,8,9-Hexachlorodibenzofuran	1.63	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,7,8-Pentachlorodibenzofuran	0.987	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1.55	pg/L	Primary Result	JB	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	1.05	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.47	pg/L	Primary Result	JBQ	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	2,3,7,8-TCDD	1.1	pg/L	Primary Result	JQ	J	V	TR	31421B
HAR-16	2014-01-29 08:33:00	Primary Sample	8290	Octachlorodibenzofuran	1.4	pg/L	Primary Result	JQC	J	IV	TR	31612G
HAR-16	2014-01-29 08:33:00	Split Sample	8290	Octachlorodibenzofuran	1.54	pg/L	Primary Result	JB	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8290	Octachlorodibenzo-p-dioxin	1.34	pg/L	Primary Result	JB	U	V	B	31421B
HAR-16	2014-01-29 08:33:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	2.8	pg/L	Primary Result	JBQC	U	IV	B	31612G
HAR-16	2014-01-29 08:33:00	Primary Sample	6010B	Manganese	0.0028	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6010B	Manganese, Dissolved	0.00049	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6010B	Potassium	1.3	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Primary Sample	6010B	Potassium, Dissolved	1.2	mg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Arsenic	0.000549	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Arsenic, Dissolved	0.000594	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Chromium	0.000251	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Iron	0.0811	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Manganese	0.0014	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Manganese, Dissolved	0.000234	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Nickel	0.000669	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Nickel, Dissolved	0.000683	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Selenium	0.00127	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Selenium, Dissolved	0.00127	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Vanadium	0.0013	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	6020A	Vanadium, Dissolved	0.00118	mg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	1.1	µg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8260B	1,1,2-Trichloroethane	0.51	µg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8260B	1,1-Dichloroethane	0.95	µg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Primary Sample	8260B	1,1-Dichloroethene	7.4	µg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Split Sample	8260B	Carbon Tetrachloride	0.24	µg/L	Primary Result	J	J	V	TR	31418A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
HAR-16	2014-01-29 08:33:00	Split Sample	8260B	trans-1,2-Dichloroethene	0.41	µg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Primary Sample	8260B	Trichloroethene	2700	µg/L	Primary Result		J	V	*XVI	31361D
HAR-16	2014-01-29 08:33:00	Split Sample	8260B	Trichloroethene	4000	µg/L	Primary Result		J	V	*XVI	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	1,2,4,5-Tetrachlorobenzene	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	1,4-Naphthoquinone	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Acetophenone	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	alpha-Picoline	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Ethyl methanesulfonate	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Hexachloropropene	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Isosafrole	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Methyl methanesulfonate	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	n-Nitrosodiethylamine	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Primary Sample	8270C	n-Nitrosodimethylamine	7	µg/L	Primary Result	J	J	V	TR	31361D
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	n-Nitrosodimethylamine	6.1	µg/L	Primary Result	J	J	V	TR	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	n-Nitrosodi-n-butylamine	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	n-Nitrosomethylethylamine	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	n-Nitrosomorpholine	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	n-Nitrosopiperidine	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	n-Nitrosopyrrolidine	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	o,o,o-Triethylphosphorothioate	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	o-Toluidine	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Pentachlorobenzene	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Pentachloroethane	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8270C	Safrole	5.1	µg/L	Primary Result	U	UJ	V	L	31418A
HAR-16	2014-01-29 08:33:00	Split Sample	8315A	Formaldehyde	50	µg/L	Primary Result	U	UJ	V	H	31421B
HAR-16	2014-01-29 08:33:00	Split Sample	8315A	Monomethylhydrazine	0.25	µg/L	Primary Result	U	UJ	V	Q	31421B
HAR-18	2014-01-29 13:27:00	Primary Sample	300.0	Fluoride	0.26	mg/L	Primary Result	J	J	V	TR	31361D
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Antimony	0.00052	mg/L	Primary Result	J	J	IV	TR	31598L
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Antimony, Dissolved	0.00047	mg/L	Primary Result	J	J	V	TR	31380D
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Arsenic	0.00052	mg/L	Primary Result	J	J	IV	TR	31598L
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Cadmium	0.00012	mg/L	Primary Result	J	J	IV	TR	31598L
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Cobalt	0.003	mg/L	Primary Result	J	J	IV	TR	31598L
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Cobalt, Dissolved	0.0029	mg/L	Primary Result	J	J	V	TR	31380D
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Lead, Dissolved	0.00031	mg/L	Primary Result	J	J	V	TR	31380D
HAR-24	2014-02-04 09:14:00	Primary Sample	6020	Thallium, Dissolved	0.000053	mg/L	Primary Result	J	J	V	TR	31380D
HAR-24	2014-02-04 09:14:00	Primary Sample	6860	Perchlorate	5.9	µg/L	Primary Result		J	V	L	31380D
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.62	pg/L	Primary Result	JBQC	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.81	pg/L	Primary Result	JBQC	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.49	pg/L	Primary Result	JBQC	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.37	pg/L	Primary Result	JBQC	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzofuran	0.27	pg/L	Primary Result	JB	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.34	pg/L	Primary Result	JBQC	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	Octachlorodibenzofuran	2	pg/L	Primary Result	JBQC	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	6.6	pg/L	Primary Result	JB	U	V	B	31380E
HAR-24	2014-02-04 09:14:00	Primary Sample	8315	Formaldehyde	8.4	µg/L	Lab Repeat Analysis	UHTV	R	V	H; D	31380D
HAR-24	2014-02-04 09:14:00	Primary Sample	8315	Formaldehyde	25	µg/L	Primary Result	J	J	V	TR; L	31380D

**TABLE B-3  
SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
HAR-24	2014-02-04 09:14:00	Primary Sample	8260B	Chloroform	0.49	µg/L	Primary Result	J	J	V	TR	31380D
HAR-24	2014-02-04 09:14:00	Primary Sample	8330A	RDX	0.52	µg/L	Primary Result	JB	U	V	B	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	300.0	Nitrate-NO3	9000	µg/L	Primary Result		J	V	H	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	350.1	Ammonia-N	0.12	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Arsenic	0.00082	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Arsenic, Dissolved	0.00075	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Copper	0.00056	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Copper, Dissolved	0.00063	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Manganese	0.00042	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Manganese, Dissolved	0.00063	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Molybdenum	0.003	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Molybdenum, Dissolved	0.0029	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Nickel	0.00031	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	6020	Nickel, Dissolved	0.00074	mg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	8315	Formaldehyde	8.4	µg/L	Lab Repeat Analysis	UHTV	R	V	H; D	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	8315	Formaldehyde	8.4	µg/L	Primary Result	U	UJ	V	L	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	8151A	MCPD	33	µg/L	Primary Result	U	UJ	IV	C	31598L
HAR-25	2014-02-04 11:00:00	Primary Sample	8260B	Tetrachloroethene	0.71	µg/L	Primary Result	J	J	V	TR	31380D
HAR-25	2014-02-04 11:00:00	Primary Sample	9040B	pH	7.11	pH Units	Primary Result	HTV	J	V	H	31380D
HAR-26	2014-01-30 10:13:00	Primary Sample	6020	Antimony	0.00069	mg/L	Primary Result	J	J	V	TR	31380A
HAR-26	2014-01-30 10:13:00	Primary Sample	6020	Antimony, Dissolved	0.00061	mg/L	Primary Result	J	J	V	TR	31380A
HAR-26	2014-01-30 10:13:00	Primary Sample	6020	Nickel	0.00041	mg/L	Primary Result	J	J	V	TR	31380A
HAR-26	2014-01-30 10:13:00	Primary Sample	6020	Nickel, Dissolved	0.00088	mg/L	Primary Result	J	J	V	TR	31380A
HAR-26	2014-01-30 10:13:00	Primary Sample	6020	Thallium	0.00011	mg/L	Primary Result	J	J	V	TR	31380A
HAR-26	2014-01-30 10:13:00	Primary Sample	6020	Thallium, Dissolved	0.00011	mg/L	Primary Result	J	J	V	TR	31380A
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.48	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.67	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.56	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,4,7,8-Heptachlorodibenzo-p-dioxin	0.3	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.7	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.31	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.77	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzofuran	0.36	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.69	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzofuran	0.54	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	0.6	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.26	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.51	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	2,3,7,8-TCDD	1.4	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	2,3,7,8-Tetrachlorodibenzofuran	0.98	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	Octachlorodibenzofuran	0.64	pg/L	Primary Result	U	UJ	V	*I	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	1.9	pg/L	Primary Result	JBQC	UJ	V	*I; B	31361F
HAR-26	2014-01-30 10:13:00	Primary Sample	8260B	Isobutanol	37	µg/L	Primary Result	U	UJ	V	S	31380A
HAR-26	2014-01-30 10:13:00	Primary Sample	8270C	Diethyl phthalate	0.74	µg/L	Primary Result	J	J	V	TR	31380A
OS-02	2014-02-05 11:50:00	Primary Sample	900.0	Gross Alpha, Dissolved	-1.4	pCi/L	Primary Result	U	UJ	V	L	31547A
OS-02	2014-02-05 11:50:00	Primary Sample	905.0	Strontium-90, Particulate	0.21	pCi/L	Primary Result	U	UJ	V	E	31547A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
OS-02	2014-02-05 11:50:00	Primary Sample	908.0	Uranium, Dissolved	0.079	pCi/L	Primary Result	U	UJ	V	*VII	31547A
OS-02	2014-02-05 11:50:00	Primary Sample	908.0	Uranium, Particulate	0.13	pCi/L	Primary Result	U	UJ	V	E	31547A
OS-02	2014-02-05 11:50:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.37	pCi/L	Primary Result	J	J	V	TR; *VII	31547A
OS-02	2014-02-05 11:50:00	Primary Sample	908.0	Uranium-235, Dissolved	0.13	pCi/L	Primary Result	U	UJ	V	*VII	31547A
OS-02	2014-02-05 11:50:00	Primary Sample	6020	Copper	0.0013	mg/L	Primary Result	J	J	V	TR	31380F
OS-02	2014-02-05 11:50:00	Primary Sample	6020	Lead, Dissolved	0.0002	mg/L	Primary Result	J	J	V	TR	31380F
OS-02	2014-02-05 11:50:00	Primary Sample	6020	Nickel, Dissolved	0.00053	mg/L	Primary Result	J	J	V	TR	31380F
OS-02	2014-02-05 11:50:00	Primary Sample	6020	Zinc	0.0094	mg/L	Primary Result	J	J	V	TR	31380F
OS-02	2014-02-05 11:50:00	Primary Sample	6020	Zinc, Dissolved	0.0048	mg/L	Primary Result	J	J	V	TR	31380F
OS-02	2014-02-05 11:50:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380F
OS-03	2014-02-05 09:59:00	Primary Sample	900.0	Gross Alpha, Dissolved	0.22	pCi/L	Primary Result	U	UJ	V	L	31547A
OS-03	2014-02-05 09:59:00	Primary Sample	901.1	Europium-152, Dissolved	9.7	pCi/L	Primary Result	UI	R	V	*VIII	31547A
OS-03	2014-02-05 09:59:00	Primary Sample	905.0	Strontium-90, Particulate	-0.058	pCi/L	Primary Result	U	UJ	V	E	31547A
OS-03	2014-02-05 09:59:00	Primary Sample	908.0	Uranium, Dissolved	0.23	pCi/L	Primary Result	J	J	V	TR; *VII	31547A
OS-03	2014-02-05 09:59:00	Primary Sample	908.0	Uranium, Particulate	0.11	pCi/L	Primary Result	U	UJ	V	E	31547A
OS-03	2014-02-05 09:59:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.25	pCi/L	Primary Result	J	J	V	TR; *VII	31547A
OS-03	2014-02-05 09:59:00	Primary Sample	908.0	Uranium-235, Dissolved	-0.005	pCi/L	Primary Result	U	UJ	V	*VII	31547A
OS-03	2014-02-05 09:59:00	Primary Sample	6020	Nickel, Dissolved	0.00055	mg/L	Primary Result	J	J	V	TR	31380F
OS-03	2014-02-05 09:59:00	Primary Sample	6020	Zinc	0.0029	mg/L	Primary Result	J	J	V	TR	31380F
OS-03	2014-02-05 09:59:00	Primary Sample	6020	Zinc, Dissolved	0.0074	mg/L	Primary Result	J	J	V	TR	31380F
OS-04	2014-02-05 10:29:00	Primary Sample	900.0	Gross Alpha, Dissolved	0.54	pCi/L	Primary Result	U	UJ	V	L	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	900.0	Gross alpha, Particulate	0.59	pCi/L	Primary Result	J	J	V	TR	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	900.0	Gross beta, Particulate	1.5	pCi/L	Primary Result	J	J	V	TR	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	901.1	Europium-154, Particulate	3.2	pCi/L	Primary Result	UI	R	V	*VIII	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	905.0	Strontium-90, Particulate	0.41	pCi/L	Primary Result	U	UJ	V	E	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	908.0	Uranium, Dissolved	0.33	pCi/L	Primary Result		J	V	*VII	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	908.0	Uranium, Particulate	0.093	pCi/L	Primary Result	U	UJ	V	E; *VII	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.67	pCi/L	Primary Result		J	V	*VII	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.067	pCi/L	Primary Result	U	UJ	V	*VII	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	908.0	Uranium-235, Dissolved	0.092	pCi/L	Primary Result	U	UJ	V	*VII	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	908.0	Uranium-235, Particulate	0.044	pCi/L	Primary Result	U	UJ	V	*VII	31547A
OS-04	2014-02-05 10:29:00	Primary Sample	6020	Cobalt	0.00027	mg/L	Primary Result	J	J	V	TR	31380F
OS-04	2014-02-05 10:29:00	Primary Sample	6020	Cobalt, Dissolved	0.000073	mg/L	Primary Result	J	J	V	TR	31380F
OS-04	2014-02-05 10:29:00	Primary Sample	6020	Nickel	0.0009	mg/L	Primary Result	J	J	V	TR	31380F
OS-04	2014-02-05 10:29:00	Primary Sample	6020	Nickel, Dissolved	0.00068	mg/L	Primary Result	J	J	V	TR	31380F
OS-04	2014-02-05 10:29:00	Primary Sample	6020	Zinc	0.0038	mg/L	Primary Result	J	J	V	TR	31380F
OS-04	2014-02-05 10:29:00	Primary Sample	6020	Zinc, Dissolved	0.0045	mg/L	Primary Result	J	J	V	TR	31380F
OS-04	2014-02-05 10:29:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380F
OS-05A	2014-02-05 09:37:00	Primary Sample	6020	Nickel	0.00033	mg/L	Primary Result	J	J	IV	TR	31598M
OS-05A	2014-02-05 09:37:00	Primary Sample	6020	Nickel, Dissolved	0.00069	mg/L	Primary Result	J	J	IV	TR	31598M
OS-05A	2014-02-05 09:37:00	Primary Sample	6020	Zinc	0.006	mg/L	Primary Result	J	J	IV	TR	31598M
OS-05A	2014-02-05 09:37:00	Primary Sample	6020	Zinc, Dissolved	0.0089	mg/L	Primary Result	J	J	IV	TR	31598M
OS-05A	2014-02-05 09:37:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	IV	C	31598M
OS-09	2014-02-05 08:35:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380F
OS-10	2014-02-18 11:46:00	Field Duplicate	300.0	Fluoride	0.48	mg/L	Primary Result	J	J	IV	TR	31453A
OS-10	2014-02-18 11:46:00	Primary Sample	901.1	Europium-152, Dissolved	-9.9	pCi/L	Primary Result	U	R	IV	*VIII	31547G



**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
OS-10	2014-02-18 11:46:00	Primary Sample	901.1	Eurpium-154, Particulate	1.5	pCi/L	Primary Result	UI	R	IV	*VIII	31547G
OS-10	2014-02-18 11:46:00	Primary Sample	908.0	Uranium, Dissolved	0.19	pCi/L	Primary Result	J	J	IV	TR: *VII	31547G
OS-10	2014-02-18 11:46:00	Field Duplicate	908.0	Uranium, Dissolved	0.095	pCi/L	Primary Result	U	UJ	IV	*VII	31547G
OS-10	2014-02-18 11:46:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.32	pCi/L	Primary Result		J	IV	*VII	31547G
OS-10	2014-02-18 11:46:00	Field Duplicate	908.0	Uranium-233/234, Dissolved	0.57	pCi/L	Primary Result		J	IV	*VII	31547G
OS-10	2014-02-18 11:46:00	Field Duplicate	908.0	Uranium-235, Dissolved	0.062	pCi/L	Primary Result	U	UJ	IV	*VII	31547G
OS-10	2014-02-18 11:46:00	Primary Sample	908.0	Uranium-235, Dissolved	0.063	pCi/L	Primary Result	U	UJ	IV	*VII	31547G
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Acetone	1.9	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Tetrachloroethene	0.2	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Trichloroethene	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	V	S	31380B
OS-25	2014-01-31 09:38:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Acetone	1.9	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Tetrachloroethene	0.2	µg/L	Primary Result	U	UJ	V	S	31380B

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Trichloroethene	0.16	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	V	S	31380B
OS-26	2014-01-31 10:51:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	V	S	31380B
OS-28	2014-02-05 08:49:00	Primary Sample	6020	Antimony, Dissolved	0.0004	mg/L	Primary Result	J	J	V	TR	31380F
OS-28	2014-02-05 08:49:00	Primary Sample	6020	Lead, Dissolved	0.00018	mg/L	Primary Result	J	J	V	TR	31380F
OS-28	2014-02-05 08:49:00	Primary Sample	6020	Zinc	0.0065	mg/L	Primary Result	J	J	IV	TR	31598M
OS-28	2014-02-05 08:49:00	Primary Sample	6020	Zinc, Dissolved	0.011	mg/L	Primary Result	J	J	V	TR	31380F
OS-28	2014-02-05 08:49:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.5	pg/L	Primary Result	JBQC	U	IV	B	31598N
OS-28	2014-02-05 08:49:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.27	pg/L	Primary Result	JBQC	U	IV	B	31598N
OS-28	2014-02-05 08:49:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.36	pg/L	Primary Result	JBQC	U	IV	B	31598N
OS-28	2014-02-05 08:49:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.21	pg/L	Primary Result	JBQC	UJ	IV	B; C	31598N
OS-28	2014-02-05 08:49:00	Primary Sample	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.26	pg/L	Primary Result	JBQC	U	IV	B	31598N
OS-28	2014-02-05 08:49:00	Primary Sample	8290	Octachlorodibenzofuran	2	pg/L	Primary Result	JB	U	IV	B	31598N
OS-28	2014-02-05 08:49:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	4.8	pg/L	Primary Result	JB	U	IV	B	31598N
PZ-006E	2014-01-27 12:00:00	Primary Sample	300.0	Fluoride	0.23	mg/L	Primary Result	J	J	IV	TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	1,1-Dichloroethane	7	µg/L	Primary Result		J	IV	S	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	J	J	IV	S; TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	1,2-Dichloroethane	2.5	µg/L	Primary Result		J	IV	S	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	IV	B; F; T; S	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	Chloroform	1	µg/L	Primary Result	J	UJ	IV	F; T; S	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	cis-1,2-Dichloroethene	5.2	µg/L	Primary Result		J	IV	S	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	IV	C	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	Tetrachloroethene	0.58	µg/L	Primary Result	J	J	IV	S; TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.18	µg/L	Primary Result	J	J	IV	S; TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	Trichloroethene	19	µg/L	Primary Result		J	IV	S	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8260B	Vinyl chloride	0.84	µg/L	Primary Result	J	J	IV	S; TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Benzo(b)fluoranthene	0.0078	µg/L	Primary Result	J	J	IV	TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Benzo(ghi)perylene	9.9	µg/L	Primary Result	JB	U	IV	B	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	9.9	µg/L	Primary Result	JB	UJ	IV	B	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Butyl benzyl phthalate	0.29	µg/L	Primary Result	J	J	IV	TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Chrysene	0.0084	µg/L	Primary Result	J	J	IV	TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Diethyl phthalate	9.9	µg/L	Primary Result	JB	U	IV	B	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Di-n-butyl phthalate	9.9	µg/L	Primary Result	JB	U	IV	B	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Di-n-octyl phthalate	0.0087	µg/L	Primary Result	U	UJ	IV	C	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Fluoranthene	0.011	µg/L	Primary Result	J	J	IV	TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Indeno(1,2,3-cd)pyrene	0.015	µg/L	Primary Result	U	UJ	IV	C	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Naphthalene	0.016	µg/L	Primary Result	J	J	IV	TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Phenanthrene	0.012	µg/L	Primary Result	J	J	IV	TR	31598F
PZ-006E	2014-01-27 12:00:00	Primary Sample	8270C SIM	Pyrene	0.012	µg/L	Primary Result	J	J	IV	TR	31598F
PZ-013F	2014-01-31 09:05:00	Primary Sample	8260B	1,1-Dichloroethene	2.6	µg/L	Primary Result	J	J	IV	TR	31598J
PZ-013F	2014-01-31 09:05:00	Primary Sample	8260B	Acetone	40	µg/L	Primary Result	JB	U	IV	B	31598J
PZ-013F	2014-01-31 09:05:00	Primary Sample	8260B	Trichlorofluoromethane	1.2	µg/L	Primary Result	U	UJ	IV	C	31598J
PZ-013F	2014-01-31 09:05:00	Primary Sample	8260B	Vinyl chloride	13	µg/L	Primary Result		J	IV	C	31598J
PZ-016G	2014-01-30 09:09:00	Primary Sample	300.0	Fluoride	0.31	mg/L	Primary Result	J	J	V	TR	31380A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Cobalt	0.00014	mg/L	Primary Result	J	J	V	TR	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Cobalt, Dissolved	0.00014	mg/L	Primary Result	J	J	V	TR	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Molybdenum	0.0018	mg/L	Primary Result	JB	J	V	TR	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Molybdenum, Dissolved	0.0014	mg/L	Primary Result	JB	J	V	TR	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Nickel	0.00042	mg/L	Primary Result	J	U	V	F	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Nickel, Dissolved	0.00066	mg/L	Primary Result	J	U	V	F	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Zinc	0.0032	mg/L	Primary Result	J	U	V	F	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	6020	Zinc, Dissolved	0.0057	mg/L	Primary Result	J	U	V	F	31380A
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.84	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1.1	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.2	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.56	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.54	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzofuran	0.62	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.97	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzofuran	0.91	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1.1	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.51	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.77	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	2,3,7,8-TCDD	2.8	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	2,3,7,8-Tetrachlorodibenzofuran	1.5	pg/L	Primary Result	U	UJ	IV	*I	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	Octachlorodibenzofuran	3.2	pg/L	Primary Result	J	J	IV	*I; TR	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	6	pg/L	Primary Result	JB	UJ	IV	*I; B; F	31612H
PZ-016G	2014-01-30 09:09:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	440	µg/L	Primary Result		J	IV	S	31598I
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Antimony, Dissolved	0.00058	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Arsenic, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Cadmium, Dissolved	0.00026	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Molybdenum	0.0075	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Molybdenum, Dissolved	0.0041	mg/L	Primary Result	JB	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Thallium	0.00011	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Thallium, Dissolved	0.000093	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Vanadium	0.0046	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Vanadium, Dissolved	0.00059	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6020	Zinc, Dissolved	0.018	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	6010B	Lithium	0.032	mg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	1,1-Dichloroethene	0.39	µg/L	Primary Result	J	J	IV	TR	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	2-Chloroethylvinyl ether	0.69	µg/L	Primary Result	U	UJ	IV	R; C	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	IV	T	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	Acrolein	2.8	µg/L	Primary Result	U	UJ	IV	R; C	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	Acrylonitrile	1.4	µg/L	Primary Result	U	UJ	IV	R	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	tert-Butyl alcohol	11	µg/L	Primary Result	U	UJ	IV	R	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	Tetrachloroethene	0.22	µg/L	Primary Result	J	J	IV	TR	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	Tetrahydrofuran	2	µg/L	Primary Result	U	UJ	IV	R	31598J
PZ-018D	2014-01-31 10:21:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.29	µg/L	Primary Result	J	J	IV	TR	31598J

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
PZ-018D	2014-01-31 10:21:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	2.7	µg/L	Primary Result	J	J	V	TR	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	8270C SIM	Diethyl phthalate	10	µg/L	Primary Result	JB	U	V	B	31380B
PZ-018D	2014-01-31 10:21:00	Primary Sample	8270C SIM	Di-n-butyl phthalate	0.12	µg/L	Primary Result	J	J	V	TR	31380B
PZ-029	2014-01-29 12:46:00	Primary Sample	6020	Chromium	0.00052	mg/L	Primary Result	J	U	V	F	31361D
PZ-029	2014-01-29 12:46:00	Primary Sample	6020	Zinc	0.0066	mg/L	Primary Result	J	U	V	F	31361D
PZ-029	2014-01-29 12:46:00	Primary Sample	6020	Zinc, Dissolved	0.0087	mg/L	Primary Result	J	U	V	F	31361D
PZ-029	2014-01-29 12:46:00	Primary Sample	8270C SIM	Diethyl phthalate	9.7	µg/L	Primary Result	JB	U	V	B	31361D
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Antimony	0.00044	mg/L	Primary Result	J	U	V	F	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Arsenic	0.0014	mg/L	Primary Result	J	J	V	TR	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Arsenic, Dissolved	0.00089	mg/L	Primary Result	J	J	V	TR	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Cadmium	0.0001	mg/L	Primary Result	J	J	V	TR	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Chromium	0.0007	mg/L	Primary Result	J	U	V	F	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Cobalt	0.00026	mg/L	Primary Result	J	J	V	TR	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Copper	0.0014	mg/L	Primary Result	J	U	V	F	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Copper, Dissolved	0.0012	mg/L	Primary Result	J	U	V	F	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Lead	0.00058	mg/L	Primary Result	J	J	V	TR	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Nickel	0.0015	mg/L	Primary Result	J	U	V	F	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Nickel, Dissolved	0.0016	mg/L	Primary Result	J	U	V	F	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Vanadium	0.0023	mg/L	Primary Result	J	J	V	TR	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Vanadium, Dissolved	0.0015	mg/L	Primary Result	J	J	V	TR	31419E
PZ-041	2014-02-11 09:04:00	Primary Sample	6020	Zinc, Dissolved	0.015	mg/L	Primary Result	JB	U	V	B	31419E
PZ-103	2014-02-10 11:02:00	Primary Sample	300.0	Nitrate-NO3	56000	µg/L	Primary Result	J	J	IV	H	31419C
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Antimony	0.00079	mg/L	Primary Result	J	U	IV	B; F	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Antimony, Dissolved	0.00074	mg/L	Primary Result	J	U	IV	B; F	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Beryllium	0.00061	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Beryllium, Dissolved	0.00011	mg/L	Primary Result	J	U	IV	B	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Cadmium, Dissolved	0.0001	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Chromium, Dissolved	0.001	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Cobalt, Dissolved	0.000065	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Copper, Dissolved	0.00085	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Nickel, Dissolved	0.0014	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Selenium	0.0034	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Selenium, Dissolved	0.0036	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Silver	0.00023	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Thallium	0.00047	mg/L	Primary Result	JB	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Thallium, Dissolved	0.00012	mg/L	Primary Result	J	U	IV	B	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Tin	0.00094	mg/L	Primary Result	J	J	IV	TR; Q	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Tin, Dissolved	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Vanadium, Dissolved	0.0013	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	6020	Zinc, Dissolved	0.0059	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-103	2014-02-10 11:02:00	Primary Sample	8260B	Chloroform	1	µg/L	Primary Result	J	J	V	F	31419C
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Antimony	0.00065	mg/L	Primary Result	J	U	IV	B; F	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Antimony, Dissolved	0.00059	mg/L	Primary Result	J	U	IV	B; F	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Arsenic	0.0019	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Arsenic, Dissolved	0.0018	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Cadmium	0.00013	mg/L	Primary Result	J	J	IV	TR	31598Q

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Chromium	0.00074	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Cobalt	0.0007	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Cobalt, Dissolved	0.00076	mg/L	Primary Result	J	J	IV	TR	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Nickel	0.0017	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Nickel, Dissolved	0.0017	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Tin	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Tin, Dissolved	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Zinc	0.0035	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	6020	Zinc, Dissolved	0.0055	mg/L	Primary Result	J	U	IV	F	31598Q
PZ-104	2014-02-10 12:32:00	Primary Sample	8260B	Acetone	2.5	µg/L	Primary Result	J	J	V	F	31419C
PZ-104	2014-02-10 12:32:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.19	µg/L	Primary Result	J	J	V	TR	31419C
PZ-105	2014-02-11 08:32:00	Primary Sample	900.0	Gross Alpha, Dissolved	16	pCi/L	Primary Result		J	IV	Q; L	31606H
PZ-105	2014-02-11 08:32:00	Primary Sample	900.0	Gross alpha, Particulate	0	pCi/L	Primary Result	U	UJ	IV	L	31606H
PZ-105	2014-02-11 08:32:00	Primary Sample	908.0	Uranium, Particulate	0.004	pCi/L	Primary Result	U	UJ	IV	*VII	31606H
PZ-105	2014-02-11 08:32:00	Primary Sample	908.0	Uranium-233/234, Particulate	29	pCi/L	Primary Result	J	J	IV	TR; *VII	31606H
PZ-105	2014-02-11 08:32:00	Primary Sample	908.0	Uranium-235, Dissolved	0.54	pCi/L	Primary Result	J	J	IV	TR	31606H
PZ-105	2014-02-11 08:32:00	Primary Sample	908.0	Uranium-235, Particulate	0.1	pCi/L	Primary Result	U	UJ	IV	*VII	31606H
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Antimony	0.00049	mg/L	Primary Result	J	U	IV	B; F	31598R
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Arsenic	0.0013	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Arsenic, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31419E
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Cobalt	0.00013	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Nickel	0.00052	mg/L	Primary Result	J	U	IV	F	31598R
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Nickel, Dissolved	0.00078	mg/L	Primary Result	J	U	V	F	31419E
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Thallium	0.0001	mg/L	Primary Result	J	U	IV	B	31598R
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Thallium, Dissolved	0.000075	mg/L	Primary Result	J	J	V	TR	31419E
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Vanadium	0.0029	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Vanadium, Dissolved	0.0024	mg/L	Primary Result	J	J	V	TR	31419E
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Zinc	0.003	mg/L	Primary Result	J	U	IV	F	31598R
PZ-105	2014-02-11 08:32:00	Primary Sample	6020	Zinc, Dissolved	0.006	mg/L	Primary Result	JB	U	V	B; F	31419E
PZ-105	2014-02-11 08:32:00	Primary Sample	8015B	Diesel Range Organics (C21-C30)	0.17	mg/L	Primary Result	J	J	V	TR	31419E
PZ-105	2014-02-11 08:32:00	Primary Sample	8015B	Diesel Range Organics (C8-C30)	0.19	mg/L	Primary Result	J	J	V	TR	31419E
PZ-105	2014-02-11 08:32:00	Primary Sample	8260B	Trichloroethene	8.7	µg/L	Primary Result		J	V	S	31419E
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Antimony	0.00055	mg/L	Primary Result	J	U	IV	B; F	31598R
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Antimony, Dissolved	0.00056	mg/L	Primary Result	J	U	V	F	31419E
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Cobalt	0.00029	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Cobalt, Dissolved	0.00015	mg/L	Primary Result	J	J	V	TR	31419E
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Copper	0.0007	mg/L	Primary Result	J	U	IV	F	31598R
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Copper, Dissolved	0.00064	mg/L	Primary Result	J	U	V	F	31419E
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Nickel	0.00081	mg/L	Primary Result	J	U	IV	F	31598R
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Nickel, Dissolved	0.00094	mg/L	Primary Result	J	U	V	F	31419E
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Vanadium	0.0018	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Vanadium, Dissolved	0.0018	mg/L	Primary Result	J	J	V	TR	31419E
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Zinc	0.0036	mg/L	Primary Result	J	U	IV	F	31598R
PZ-106	2014-02-11 12:32:00	Primary Sample	6020	Zinc, Dissolved	0.0065	mg/L	Primary Result	JB	U	V	B; F	31419E
PZ-106	2014-02-11 12:32:00	Primary Sample	8260B	Trichloroethene	0.32	µg/L	Primary Result	J	J	V	S; TR	31419E
PZ-108	2014-02-13 12:57:00	Primary Sample	300.0	Nitrate-NO3	1300	µg/L	Primary Result		J	V	TR	31438B

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Arsenic	0.0014	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Arsenic, Dissolved	0.0011	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Cadmium	0.00026	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Cadmium, Dissolved	0.00017	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Chromium	0.0015	mg/L	Primary Result	J	U	V	F	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Cobalt	0.00042	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Copper	0.00086	mg/L	Primary Result	J	U	V	F	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Lead	0.00036	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Nickel	0.0016	mg/L	Primary Result	J	U	V	F	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Nickel, Dissolved	0.00077	mg/L	Primary Result	J	U	V	F	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Silver	0.00013	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Vanadium	0.0038	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Vanadium, Dissolved	0.0019	mg/L	Primary Result	J	J	V	TR	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Zinc	0.0076	mg/L	Primary Result	J	U	V	F	31438B
PZ-108	2014-02-13 12:57:00	Primary Sample	6020	Zinc, Dissolved	0.0031	mg/L	Primary Result	J	U	V	F	31438B
PZ-109	2014-02-13 08:56:00	Primary Sample	300.0	Fluoride	0.42	mg/L	Primary Result	J	J	V	TR	31438B
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Arsenic	0.0019	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Arsenic, Dissolved	0.0016	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Chromium	0.00084	mg/L	Primary Result	J	U	IV	F	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Cobalt	0.00067	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Cobalt, Dissolved	0.0005	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Lead	0.0018	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Vanadium	0.0028	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	6020	Vanadium, Dissolved	0.002	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-109	2014-02-13 08:56:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.81	µg/L	Primary Result	J	J	V	TR	31438B
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Arsenic	0.0017	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Arsenic, Dissolved	0.0015	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Cadmium, Dissolved	0.00015	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Cobalt	0.0002	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Cobalt, Dissolved	0.0001	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Copper	0.00076	mg/L	Primary Result	J	U	IV	F	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Copper, Dissolved	0.0012	mg/L	Primary Result	J	U	IV	F	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Vanadium	0.0029	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Vanadium, Dissolved	0.0028	mg/L	Primary Result	J	J	IV	TR	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Zinc	0.0098	mg/L	Primary Result	J	U	IV	F	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	6020	Zinc, Dissolved	0.013	mg/L	Primary Result	JB	U	IV	B; F	31598R
PZ-120	2014-02-11 11:01:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	5.2	µg/L	Primary Result		J	V	S	31419E
PZ-120	2014-02-11 11:01:00	Primary Sample	8260B	1,1-Dichloroethane	2	µg/L	Primary Result		J	V	S	31419E
PZ-120	2014-02-11 11:01:00	Primary Sample	8260B	1,1-Dichloroethene	0.6	µg/L	Primary Result	J	J	V	S; TR	31419E
PZ-120	2014-02-11 11:01:00	Primary Sample	8260B	Chloroform	1	µg/L	Primary Result	J	UJ	V	Q; S; T	31419E
PZ-120	2014-02-11 11:01:00	Primary Sample	8260B	cis-1,2-Dichloroethene	14	µg/L	Primary Result		J	V	S	31419E
PZ-120	2014-02-11 11:01:00	Primary Sample	8260B	Trichloroethene	90	µg/L	Primary Result		J	V	S	31419E
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Arsenic	0.0006	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Chromium	0.00071	mg/L	Primary Result	J	U	IV	F	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Cobalt	0.00061	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Cobalt, Dissolved	0.000086	mg/L	Primary Result	J	J	IV	TR	31598T

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Copper	0.00059	mg/L	Primary Result	J	U	IV	F	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Lead	0.00023	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Lead, Dissolved	0.0003	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Nickel, Dissolved	0.0019	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Vanadium	0.0021	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Vanadium, Dissolved	0.0012	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Zinc	0.0048	mg/L	Primary Result	J	U	IV	F	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	6020	Zinc, Dissolved	0.0027	mg/L	Primary Result	J	J	IV	TR	31598T
PZ-122	2014-02-13 11:05:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.19	µg/L	Primary Result	J	J	V	TR	31438B
PZ-122	2014-02-13 11:05:00	Primary Sample	8260B	Trichloroethene	0.84	µg/L	Primary Result	J	J	V	TR	31438B
RD-01	2014-01-22 09:36:00	Primary Sample	6020	Copper, Dissolved	0.0007	mg/L	Primary Result	J	J	V	TR	31345A
RD-01	2014-01-22 09:36:00	Primary Sample	6020	Molybdenum	0.00094	mg/L	Primary Result	J	J	IV	TR	31598C
RD-01	2014-01-22 09:36:00	Primary Sample	6020	Molybdenum, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31345A
RD-01	2014-01-22 09:36:00	Primary Sample	6020	Nickel, Dissolved	0.00055	mg/L	Primary Result	J	J	V	TR	31345A
RD-01	2014-01-22 09:36:00	Primary Sample	6020	Zinc	0.0043	mg/L	Primary Result	J	J	IV	TR	31598C
RD-01	2014-01-22 09:36:00	Primary Sample	6020	Zinc, Dissolved	0.0069	mg/L	Primary Result	JB	U	V	B	31345A
RD-02	2014-01-24 08:33:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	0.78	pg/L	Primary Result	JB	U	V	B	31345C
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	1,1-Dichloroethane	0.44	µg/L	Primary Result	U	UJ	IV	Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	1,1-Dichloroethene	3.2	µg/L	Primary Result		J	IV	S; Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	1,2-Dibromoethane	0.36	µg/L	Primary Result	U	UJ	IV	Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	1,2-Dichlorobenzene	0.3	µg/L	Primary Result	U	UJ	IV	Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	1,3-Dichloropropane	0.44	µg/L	Primary Result	U	UJ	IV	Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	Acetone	6.7	µg/L	Primary Result	J	J	IV	S; TR; Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	Chlorobenzene	0.34	µg/L	Primary Result	U	UJ	IV	Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	cis-1,2-Dichloroethene	930	µg/L	Primary Result		J	IV	S	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	cis-1,3-Dichloropropene	0.32	µg/L	Primary Result	U	UJ	IV	Q	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	Methyl ethyl ketone	4	µg/L	Primary Result	U	UJ	IV	C	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	Naphthalene	0.44	µg/L	Primary Result	U	UJ	IV	C	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	Tetrahydrofuran	4.1	µg/L	Primary Result	U	UJ	IV	C	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	trans-1,2-Dichloroethene	42	µg/L	Primary Result		J	IV	S	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	Trichloroethene	510	µg/L	Primary Result		J	IV	S	31598E
RD-02	2014-01-24 08:33:00	Primary Sample	8260B	Vinyl chloride	1.2	µg/L	Primary Result	J	J	IV	S; TR	31598E
RD-03	2014-01-22 13:31:00	Field Duplicate	300.0	Fluoride	0.38	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	300.0	Fluoride	0.38	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Field Duplicate	350.1	Ammonia-N	0.034	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	350.1	Ammonia-N	0.036	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Field Duplicate	8290	Octachlorodibenzofuran	1.1	pg/L	Primary Result	JQC	J	V	TR	31314A
RD-03	2014-01-22 13:31:00	Field Duplicate	8290	Octachlorodibenzo-p-dioxin	2.1	pg/L	Primary Result	JBQC	U	V	B	31314A
RD-03	2014-01-22 13:31:00	Primary Sample	9012	Cyanides	0.0026	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Field Duplicate	9012	Cyanides	0.0034	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	6010B	Lithium	0.048	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	6010B	Lithium	0.049	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Field Duplicate	6010B	Lithium	0.048	mg/L	Primary Result	J	J	V	TR	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	S	31345A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Acetone	1.9	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Isopropanol	13	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Tetrachloroethene	0.2	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Trichloroethene	0.16	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	V	S	31345A
RD-03	2014-01-22 13:31:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	V	S	31345A
RD-06	2014-01-21 09:40:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31307A
RD-06	2014-01-21 09:40:00	Primary Sample	9040B	pH	7.28	pH Units	Primary Result	HTV	J	V	H	31307A
RD-07	2014-02-07 08:45:00	Primary Sample	300.0	Nitrate-NO3	9900	µg/L	Primary Result		J	IV	H	31419B
RD-07	2014-02-07 08:45:00	Primary Sample	900.0	Gross Alpha, Dissolved	7.3	pCi/L	Primary Result		J	V	L	31547C
RD-07	2014-02-07 08:45:00	Primary Sample	900.0	Gross alpha, Particulate	0.23	pCi/L	Primary Result	U	UJ	V	L	31547C
RD-07	2014-02-07 08:45:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.26	pCi/L	Primary Result	J	J	V	TR	31547C
RD-07	2014-02-07 08:45:00	Primary Sample	908.0	Uranium-235, Dissolved	0.36	pCi/L	Primary Result	J	J	V	TR	31547C
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Cobalt	0.00045	mg/L	Primary Result	J	J	IV	TR	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Copper	0.00093	mg/L	Primary Result	J	U	IV	F	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Copper, Dissolved	0.00062	mg/L	Primary Result	J	U	IV	F	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Lead	0.00029	mg/L	Primary Result	J	J	IV	TR	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Nickel	0.00057	mg/L	Primary Result	J	U	IV	F	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Nickel, Dissolved	0.0006	mg/L	Primary Result	J	U	IV	F	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Selenium	0.002	mg/L	Primary Result	J	J	IV	TR	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Selenium, Dissolved	0.002	mg/L	Primary Result	J	J	IV	TR	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Vanadium	0.00086	mg/L	Primary Result	J	J	IV	TR	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Vanadium, Dissolved	0.00076	mg/L	Primary Result	J	J	IV	TR	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6020	Zinc, Dissolved	0.013	mg/L	Primary Result	J	U	IV	F	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	6860	Perchlorate	0.18	µg/L	Primary Result		J	V	L	31419B
RD-07	2014-02-07 08:45:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	J	UJ	IV	F; S	31598P
RD-07	2014-02-07 08:45:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T; F	31419B
RD-07	2014-02-07 08:45:00	Primary Sample	8260B	Trichloroethene	57	µg/L	Primary Result		J	V	S	31419B
RD-08	2014-01-27 11:00:00	Primary Sample	300.0	Fluoride	0.2	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	350.1	Ammonia-N	0.041	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	524.2	1,2,3-Trichloropropane	0.0021	µg/L	Primary Result	J	J	IV	TR	31612E
RD-08	2014-01-27 11:00:00	Primary Sample	4500	Sulfide	0.0073	mg/L	Primary Result	J	J	IV	TR	31612E



**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-08	2014-01-27 11:00:00	Primary Sample	6020	Antimony	0.00059	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	6020	Antimony, Dissolved	0.00045	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	6020	Arsenic	0.00033	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	6020	Nickel, Dissolved	0.00062	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	6020	Thallium, Dissolved	0.000077	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	6020	Zinc	0.0034	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	6020	Zinc, Dissolved	0.0076	mg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	8260B	1,1-Dichloroethane	0.74	µg/L	Primary Result	J	J	V	TR	31345D
RD-08	2014-01-27 11:00:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345D
RD-10	2014-01-22 11:46:00	Primary Sample	8260B	Vinyl chloride	0.94	µg/L	Primary Result	J	J	V	TR	31345A
RD-10	2014-01-22 11:46:00	Primary Sample	8330A	RDX	0.25	µg/L	Primary Result	J	J	V	TR	31345A
RD-100	2014-01-24 09:48:00	Primary Sample	6020	Cobalt	0.00014	mg/L	Primary Result	J	J	V	TR	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	6020	Copper, Dissolved	0.00057	mg/L	Primary Result	J	J	V	TR	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	6010B	Titanium	0.0016	mg/L	Primary Result	J	J	V	TR	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	6010B	Titanium	0.0074	mg/L	Primary Result	J	J	V	TR	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	1,1-Dichloroethane	8.3	µg/L	Primary Result		J	V	S	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	1,1-Dichloroethene	9	µg/L	Primary Result		J	V	S	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	2-Chloroethylvinyl ether	0.69	µg/L	Primary Result	U	UJ	V	S	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	Acrolein	2.8	µg/L	Primary Result	U	UJ	V	S	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	Acrylonitrile	1.4	µg/L	Primary Result	U	UJ	V	S	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	Chloroethane	0.47	µg/L	Primary Result	J	J	V	S; TR	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	cis-1,2-Dichloroethene	4.3	µg/L	Primary Result		J	V	S	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	Trichloroethene	14	µg/L	Primary Result		J	V	S	31361A
RD-100	2014-01-24 09:48:00	Primary Sample	8260B	Vinyl chloride	0.85	µg/L	Primary Result	J	J	V	S; TR	31361A
RD-103	2014-02-12 10:00:00	Primary Sample	300.0	Nitrate-NO3	200	µg/L	Primary Result		J	V	TR	31438A
RD-103	2014-02-12 10:45:00	Primary Sample	300.0	Nitrate-NO3	330	µg/L	Primary Result		J	V	TR	31438A
RD-103	2014-02-10 15:40:00	Primary Sample	6020	Arsenic	0.0021	mg/L	Primary Result	J	J	V	TR	31419C
RD-103	2014-02-12 10:45:00	Primary Sample	6020	Arsenic	0.0019	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-12 15:40:00	Primary Sample	6020	Arsenic, Dissolved	0.0022	mg/L	Primary Result	J	J	V	TR	31419C
RD-103	2014-02-12 10:45:00	Primary Sample	6020	Arsenic, Dissolved	0.0016	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-12 08:30:00	Primary Sample	6020	Arsenic, Dissolved	0.00033	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-12 10:45:00	Primary Sample	6020	Chromium	0.0015	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	6020	Chromium	0.00089	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-10 15:40:00	Primary Sample	6020	Copper, Dissolved	0.0006	mg/L	Primary Result	J	J	V	TR	31419C
RD-103	2014-02-12 08:30:00	Primary Sample	6020	Copper, Dissolved	0.00067	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-12 10:45:00	Primary Sample	6020	Copper, Dissolved	0.00064	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	6020	Copper, Dissolved	0.00074	mg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-10 15:40:00	Primary Sample	6020	Lead, Dissolved	0.00024	mg/L	Primary Result	J	J	V	TR	31419C
RD-103	2014-02-12 08:30:00	Primary Sample	6860	Perchlorate	0.077	µg/L	Primary Result		J	V	Q	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 08:30:00	Primary Sample	8260B	Acetone	2.4	µg/L	Primary Result	J	J	IV	TR	31612O

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Acetone	1.9	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	cis-1,2-Dichloroethene	43	µg/L	Primary Result		J	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 08:30:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	IV	C	31612O
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Tetrachloroethene	0.2	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.98	µg/L	Primary Result	J	J	V	S; TR	31438A
RD-103	2014-02-12 09:30:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.89	µg/L	Primary Result	J	J	V	TR	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Trichloroethene	24	µg/L	Primary Result		J	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	V	S	31438A
RD-103	2014-02-12 10:00:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	V	S	31438A
RD-109	2014-02-10 08:49:00	Primary Sample	300.0	Fluoride	0.3	mg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Antimony	0.00078	mg/L	Primary Result	J	U	IV	B; F	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Antimony, Dissolved	0.00065	mg/L	Primary Result	J	U	IV	B; F	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Arsenic	0.00063	mg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Cadmium	0.00019	mg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Cadmium, Dissolved	0.00019	mg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Copper	0.0024	mg/L	Primary Result		U	IV	F	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Copper, Dissolved	0.0013	mg/L	Primary Result	J	U	IV	F	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Lead	0.0002	mg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Silver	0.000078	mg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Zinc	0.015	mg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	6020	Zinc, Dissolved	0.013	mg/L	Primary Result	J	U	IV	F	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8290	Octachlorodibenzofuran	2.1	pg/L	Primary Result	JBQC	U	IV	B	31419D
RD-109	2014-02-10 08:49:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	31	pg/L	Primary Result	JBQC	U	IV	B; F	31419D
RD-109	2014-02-10 08:49:00	Primary Sample	8081A	Endosulfan II	0.0033	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8081A	Heptachlor epoxide	0.0036	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8081A	Toxaphene	0.18	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8260B	1,1-Dichloroethene	14	µg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8260B	Trichlorofluoromethane	12	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8260B	Vinyl chloride	4	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	9.6	µg/L	Primary Result	JB	U	IV	B	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8270C SIM	Diethyl phthalate	9.6	µg/L	Primary Result	JB	U	IV	B	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8270C SIM	Dimethyl phthalate	0.019	µg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8270C SIM	Di-n-butyl phthalate	9.6	µg/L	Primary Result	JB	U	IV	B	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8270C SIM	Naphthalene	0.012	µg/L	Primary Result	J	J	IV	TR	31419C
RD-109	2014-02-10 08:49:00	Primary Sample	8270C SIM	n-Nitrosodimethylamine	2	µg/L	Primary Result	J	J	IV	TR	31419C
RD-11	2014-01-29 08:38:00	Primary Sample	4500	Sulfide	0.042	mg/L	Primary Result	J	J	IV	TR	31612F
RD-11	2014-01-29 08:38:00	Field Duplicate	4500	Sulfide	0.037	mg/L	Primary Result	J	J	IV	TR	31612F

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-11	2014-01-29 08:38:00	Primary Sample	6020	Lead, Dissolved	0.00021	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Primary Sample	6020	Nickel	0.00074	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Field Duplicate	6020	Nickel	0.00074	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Primary Sample	6020	Nickel, Dissolved	0.00067	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Field Duplicate	6020	Nickel, Dissolved	0.00047	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Field Duplicate	6020	Zinc	0.0028	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Primary Sample	6020	Zinc	0.0028	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Primary Sample	6020	Zinc, Dissolved	0.004	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Field Duplicate	6020	Zinc, Dissolved	0.0023	mg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1.2	pg/L	Primary Result	JQC	J	IV	TR	31612G
RD-11	2014-01-29 08:38:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	2.8	pg/L	Primary Result	JQC	J	IV	TR	31612G
RD-11	2014-01-29 08:38:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.6	pg/L	Primary Result	JQC	J	IV	TR	31612G
RD-11	2014-01-29 08:38:00	Primary Sample	8290	Octachlorodibenzofuran	13	pg/L	Primary Result	J	J	IV	TR	31612G
RD-11	2014-01-29 08:38:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	26	pg/L	Primary Result	JB	J	IV	TR	31612G
RD-11	2014-01-29 08:38:00	Field Duplicate	8290	Octachlorodibenzo-p-dioxin	3.8	pg/L	Primary Result	JBQC	U	V	B	31361E
RD-11	2014-01-29 08:38:00	Primary Sample	8270C	Diethyl phthalate	1.3	µg/L	Primary Result	J	J	V	TR	31361D
RD-11	2014-01-29 08:38:00	Field Duplicate	8270C	Diethyl phthalate	1.3	µg/L	Primary Result	J	J	V	TR	31361D
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Antimony	0.00053	mg/L	Primary Result	J	U	IV	B; F	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Arsenic	0.0009	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Arsenic, Dissolved	0.00035	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Beryllium	0.00013	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Chromium	0.001	mg/L	Primary Result	J	U	IV	F	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Lead	0.0003	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Molybdenum	0.00083	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Molybdenum, Dissolved	0.00087	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Nickel	0.0013	mg/L	Primary Result	J	U	IV	F	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Nickel, Dissolved	0.0011	mg/L	Primary Result	J	U	IV	F	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Selenium	0.002	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Selenium, Dissolved	0.0022	mg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Zinc	0.0064	mg/L	Primary Result	J	U	IV	F	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	6020	Zinc, Dissolved	0.0044	mg/L	Primary Result	J	U	IV	F	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	14	pg/L	Primary Result	JB	U	IV	B; F	31419D
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	1,1-Dichloroethane	3.3	µg/L	Primary Result	J	J	IV	TR	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	1,1-Dichloroethene	48	µg/L	Primary Result		J	IV	Q	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	1,2-Dibromo-3-chloropropane	4.7	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	1,4-Dichlorobenzene	1.6	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Acrolein	28	µg/L	Primary Result	U	UJ	IV	R; C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Acrylonitrile	14	µg/L	Primary Result	U	UJ	IV	R; C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Bromomethane	2.1	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Chlorobenzene	1.7	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Chloroethane	4.1	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Chloroform	1.8	µg/L	Primary Result	J	J	IV	F	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Chloromethane	3	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	cis-1,3-Dichloropropene	1.6	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	tert-Butyl alcohol	110	µg/L	Primary Result	U	UJ	IV	R	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Tetrahydrofuran	20	µg/L	Primary Result	U	UJ	IV	R	31419C

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Trichlorofluoromethane	2.9	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8260B	Vinyl chloride	1	µg/L	Primary Result	U	UJ	IV	C	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	9.5	µg/L	Primary Result	JB	U	IV	B	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8270C SIM	Diethyl phthalate	9.5	µg/L	Primary Result	JB	U	IV	B	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8270C SIM	Di-n-butyl phthalate	9.5	µg/L	Primary Result	JB	U	IV	B	31419C
RD-110	2014-02-10 10:36:00	Primary Sample	8270C SIM	Naphthalene	0.0078	µg/L	Primary Result	J	J	IV	TR	31419C
RD-12	2014-01-29 09:23:00	Primary Sample	300.0	Fluoride	0.47	mg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	350.1	Ammonia-N	0.051	mg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	6020	Cobalt	0.00036	mg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	6020	Cobalt, Dissolved	0.00033	mg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	6020	Nickel	0.0016	mg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	6020	Nickel, Dissolved	0.0018	mg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	6020	Silver, Dissolved	0.000077	mg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	6.2	pg/L	Primary Result	JB	U	V	B	31361E
RD-12	2014-01-29 09:23:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.17	µg/L	Primary Result	J	J	V	TR	31361D
RD-12	2014-01-29 09:23:00	Primary Sample	8260B SIM	1,4-Dioxane	0.44	µg/L	Primary Result	J	J	V	TR	31361D
RD-13	2014-02-11 13:48:00	Primary Sample	300.0	Fluoride	0.41	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	300.0	Fluoride	0.41	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	900.0	Gross Alpha, Dissolved	6	pCi/L	Primary Result		J	IV	E; L; Q	31612N
RD-13	2014-02-11 13:48:00	Field Duplicate	900.0	Gross Alpha, Dissolved	22	pCi/L	Primary Result		J	IV	E; L; Q	31612N
RD-13	2014-02-11 13:48:00	Primary Sample	900.0	Gross alpha, Particulate	-0.033	pCi/L	Primary Result	U	UJ	V	E; L	31547D
RD-13	2014-02-11 13:48:00	Field Duplicate	900.0	Gross alpha, Particulate	-0.16	pCi/L	Primary Result	U	UJ	V	E; L	31547D
RD-13	2014-02-11 13:48:00	Field Duplicate	900.0	Gross Beta, Dissolved	3.7	pCi/L	Primary Result	J	J	IV	TR	31612N
RD-13	2014-02-11 13:48:00	Field Duplicate	901.1	Europium-152, Dissolved	11	pCi/L	Primary Result	UI	R	V	*VIII	31547D
RD-13	2014-02-11 13:48:00	Field Duplicate	901.1	Europium-154, Particulate	2.1	pCi/L	Primary Result	UI	R	V	*VIII	31547D
RD-13	2014-02-11 13:48:00	Primary Sample	908.0	Uranium, Dissolved	1.5	pCi/L	Primary Result		J	V	*VII	31547D
RD-13	2014-02-11 13:48:00	Primary Sample	908.0	Uranium, Particulate	0.24	pCi/L	Primary Result	J	J	V	TR	31547D
RD-13	2014-02-11 13:48:00	Field Duplicate	908.0	Uranium, Particulate	0.073	pCi/L	Primary Result	U	UJ	V	*VII	31547D
RD-13	2014-02-11 13:48:00	Primary Sample	908.0	Uranium-233/234, Dissolved	2.4	pCi/L	Primary Result		J	V	*VII	31547D
RD-13	2014-02-11 13:48:00	Field Duplicate	908.0	Uranium-233/234, Particulate	0.06	pCi/L	Primary Result	U	UJ	V	*VII	31547D
RD-13	2014-02-11 13:48:00	Primary Sample	908.0	Uranium-235, Dissolved	0.12	pCi/L	Primary Result	U	UJ	V	*VII	31547D
RD-13	2014-02-11 13:48:00	Field Duplicate	908.0	Uranium-235, Particulate	0.086	pCi/L	Primary Result	U	UJ	V	*VII	31547D
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Arsenic	0.0007	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Arsenic	0.0009	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Arsenic, Dissolved	0.00077	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Arsenic, Dissolved	0.00072	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Copper, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Lead	0.00029	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Lead	0.00019	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Lead, Dissolved	0.00027	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Nickel	0.00041	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Nickel	0.00052	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Nickel, Dissolved	0.00051	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Nickel, Dissolved	0.00085	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Selenium	0.00077	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Selenium	0.0011	mg/L	Primary Result	J	J	V	TR	31419E

**TABLE B-3  
SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Selenium, Dissolved	0.00095	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Selenium, Dissolved	0.0011	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Vanadium	0.0016	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Vanadium	0.0016	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Field Duplicate	6020	Vanadium, Dissolved	0.0015	mg/L	Primary Result	J	J	V	TR	31419E
RD-13	2014-02-11 13:48:00	Primary Sample	6020	Vanadium, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31419E
RD-14	2014-02-06 10:20:00	Primary Sample	300.0	Fluoride	0.27	mg/L	Primary Result	JB	U	V	B	31419A
RD-14	2014-02-06 10:20:00	Primary Sample	300.0	Nitrate-NO3	190	µg/L	Primary Result	U	J	V	TR	31419A
RD-14	2014-02-06 10:20:00	Primary Sample	900.0	Gross Alpha, Dissolved	1.8	pCi/L	Primary Result	U	UJ	V	E	31547B
RD-14	2014-02-06 10:20:00	Primary Sample	900.0	Gross alpha, Particulate	-0.071	pCi/L	Primary Result	U	UJ	V	E	31547B
RD-14	2014-02-06 10:20:00	Primary Sample	900.0	Gross beta, Particulate	1.4	pCi/L	Primary Result	J	J	V	TR	31547B
RD-14	2014-02-06 10:20:00	Primary Sample	908.0	Uranium, Particulate	0.078	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-14	2014-02-06 10:20:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.1	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-14	2014-02-06 10:20:00	Primary Sample	908.0	Uranium-235, Dissolved	0.27	pCi/L	Primary Result	J	J	V	TR	31547B
RD-14	2014-02-06 10:20:00	Primary Sample	908.0	Uranium-235, Particulate	0.068	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-14	2014-02-06 10:20:00	Primary Sample	6020	Cobalt	0.00013	mg/L	Primary Result	J	J	IV	TR	31598O
RD-14	2014-02-06 10:20:00	Primary Sample	6020	Cobalt, Dissolved	0.00015	mg/L	Primary Result	J	J	IV	TR	31598O
RD-14	2014-02-06 10:20:00	Primary Sample	6020	Nickel	0.0014	mg/L	Primary Result	J	J	IV	TR	31598O
RD-14	2014-02-06 10:20:00	Primary Sample	6020	Nickel, Dissolved	0.00071	mg/L	Primary Result	J	J	IV	TR	31598O
RD-14	2014-02-06 10:20:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	T	31419A
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Arsenic	0.00054	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Chromium	0.0042	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Cobalt	0.00056	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Cobalt, Dissolved	0.00028	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Copper, Dissolved	0.00059	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Lead, Dissolved	0.00065	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Nickel, Dissolved	0.00061	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Thallium	0.0001	mg/L	Primary Result	J	U	IV	B	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	6020	Vanadium	0.0012	mg/L	Primary Result	J	J	IV	TR	31598M
RD-15	2014-02-05 10:08:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380F
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Antimony	0.00056	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Antimony, Dissolved	0.0006	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Arsenic	0.0026	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Arsenic, Dissolved	0.0011	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Chromium	0.0049	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Cobalt	0.00025	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Cobalt, Dissolved	0.000068	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Copper, Dissolved	0.0015	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Lead, Dissolved	0.00062	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Nickel, Dissolved	0.0013	mg/L	Primary Result	J	J	IV	TR	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Thallium	0.00014	mg/L	Primary Result	JB	U	IV	B	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Thallium, Dissolved	0.00015	mg/L	Primary Result	JB	U	IV	B	31598O
RD-16	2014-02-06 09:12:00	Primary Sample	6020	Vanadium	0.0014	mg/L	Primary Result	J	J	IV	TR	31598O
RD-17	2014-02-10 14:43:00	Split Sample	901.1	Thulium-171, Dissolved	0	pCi/L	Primary Result	UI	R	IV	*VIII	31606A
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Arsenic	0.0007	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Arsenic, Dissolved	0.00073	mg/L	Primary Result	J	J	IV	TR	31598Q

**TABLE B-3  
SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Lead	0.00077	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Lead, Dissolved	0.00022	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Nickel, Dissolved	0.00049	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Thallium, Dissolved	0.000061	mg/L	Primary Result	J	U	IV	B	31598Q
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Tin	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31598Q
RD-17	2014-02-10 14:43:00	Primary Sample	6020	Tin, Dissolved	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31598Q
RD-17	2014-02-10 14:43:00	Primary Sample	8260B	Acetone	2.2	µg/L	Primary Result	J	J	V	TR	31419C
RD-18	2014-02-07 09:50:00	Primary Sample	300.0	Fluoride	0.33	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	300.0	Fluoride	0.32	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	900.0	Gross Alpha, Dissolved	8.6	pCi/L	Primary Result		J	V	L	31547C
RD-18	2014-02-07 09:50:00	Field Duplicate	900.0	Gross Alpha, Dissolved	6.1	pCi/L	Primary Result		J	V	L	31547C
RD-18	2014-02-07 09:50:00	Primary Sample	900.0	Gross alpha, Particulate	-0.5	pCi/L	Primary Result	U	UJ	V	L	31547C
RD-18	2014-02-07 09:50:00	Field Duplicate	900.0	Gross alpha, Particulate	0.034	pCi/L	Primary Result	U	UJ	V	L	31547C
RD-18	2014-02-07 09:50:00	Primary Sample	900.0	Gross Beta, Dissolved	4.5	pCi/L	Primary Result	J	J	V	TR	31547C
RD-18	2014-02-07 09:50:00	Field Duplicate	904.0	Radium-228, Dissolved	1.8	pCi/L	Primary Result		J	V	L	31547C
RD-18	2014-02-07 09:50:00	Primary Sample	904.0	Radium-228, Dissolved	1.4	pCi/L	Primary Result	J	J	V	TR; L	31547C
RD-18	2014-02-07 09:50:00	Field Duplicate	908.0	Uranium, Dissolved	3.4	pCi/L	Primary Result		J	V	*VII	31547C
RD-18	2014-02-07 09:50:00	Field Duplicate	908.0	Uranium-233/234, Dissolved	4.3	pCi/L	Primary Result		J	V	*VII	31547C
RD-18	2014-02-07 09:50:00	Field Duplicate	908.0	Uranium-235, Dissolved	0.34	pCi/L	Primary Result	J	J	V	TR; *VII	31547C
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Antimony	0.00063	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Antimony, Dissolved	0.0006	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Arsenic	0.0015	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	6020	Arsenic	0.0015	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Arsenic, Dissolved	0.0016	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	6020	Arsenic, Dissolved	0.0016	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Copper, Dissolved	0.00066	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Nickel	0.001	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	6020	Nickel	0.001	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Nickel, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	6020	Nickel, Dissolved	0.001	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Vanadium	0.0035	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	6020	Vanadium	0.0035	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	6020	Vanadium, Dissolved	0.0034	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	6020	Vanadium, Dissolved	0.0034	mg/L	Primary Result	J	J	V	TR	31419B
RD-18	2014-02-07 09:50:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31419B
RD-18	2014-02-07 09:50:00	Field Duplicate	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31419B
RD-19	2014-02-13 10:58:00	Primary Sample	300.0	Fluoride	0.36	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	908.0	Uranium, Dissolved	11	pCi/L	Primary Result		J	V	*VII	31547F
RD-19	2014-02-13 10:58:00	Primary Sample	908.0	Uranium-233/234, Dissolved	11	pCi/L	Primary Result		J	V	*VII	31547F
RD-19	2014-02-13 10:58:00	Primary Sample	908.0	Uranium-235, Dissolved	0.63	pCi/L	Primary Result		J	V	*VII	31547F
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Antimony	0.0005	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Cobalt	0.000086	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Cobalt, Dissolved	0.00011	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Copper, Dissolved	0.00065	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Nickel, Dissolved	0.0019	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Thallium	0.000061	mg/L	Primary Result	J	J	V	TR	31438B

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Thallium, Dissolved	0.000064	mg/L	Primary Result	JB	U	V	B	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Vanadium	0.0006	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	6020	Vanadium, Dissolved	0.00075	mg/L	Primary Result	J	J	V	TR	31438B
RD-19	2014-02-13 10:58:00	Primary Sample	EiChrom Am-01	Americium-241, Dissolved	0.013	pCi/L	Primary Result	U	UJ	IV	*VII	31606J
RD-19	2014-02-13 10:58:00	Primary Sample	EiChrom Am-01	Curium-243/244, Dissolved	0.004	pCi/L	Primary Result	U	UJ	IV	*VII	31606J
RD-20	2014-02-07 11:04:00	Primary Sample	300.0	Nitrate-NO3	39000	µg/L	Primary Result		J	IV	H	31419B
RD-20	2014-02-07 11:04:00	Primary Sample	900.0	Gross Alpha, Dissolved	8.8	pCi/L	Primary Result	J	J	V	TR; L	31547C
RD-20	2014-02-07 11:04:00	Primary Sample	900.0	Gross alpha, Particulate	0.19	pCi/L	Primary Result	U	UJ	V	L	31547C
RD-20	2014-02-07 11:04:00	Primary Sample	901.1	Europium-152, Dissolved	16	pCi/L	Primary Result	UI	R	IV	*VIII	31606F
RD-20	2014-02-07 11:04:00	Primary Sample	901.1	Europium-152, Particulate	3.5	pCi/L	Primary Result	UI	R	IV	*VIII	31606F
RD-20	2014-02-07 11:04:00	Primary Sample	908.0	Uranium-235, Dissolved	0.35	pCi/L	Primary Result	J	J	V	TR	31547C
RD-20	2014-02-07 11:04:00	Primary Sample	6020	Arsenic	0.00035	mg/L	Primary Result	J	J	IV	TR	31598P
RD-20	2014-02-07 11:04:00	Primary Sample	6020	Nickel	0.00077	mg/L	Primary Result	J	J	IV	TR	31598P
RD-20	2014-02-07 11:04:00	Primary Sample	6020	Nickel, Dissolved	0.0011	mg/L	Primary Result	J	J	IV	TR	31598P
RD-20	2014-02-07 11:04:00	Primary Sample	6020	Selenium	0.0028	mg/L	Primary Result	J	J	IV	TR	31598P
RD-20	2014-02-07 11:04:00	Primary Sample	6020	Selenium, Dissolved	0.0027	mg/L	Primary Result	J	J	IV	TR	31598P
RD-20	2014-02-07 11:04:00	Primary Sample	6020	Vanadium	0.00084	mg/L	Primary Result	J	J	IV	TR	31598P
RD-20	2014-02-07 11:04:00	Primary Sample	6020	Vanadium, Dissolved	0.00075	mg/L	Primary Result	J	J	IV	TR	31598P
RD-20	2014-02-07 11:04:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31419B
RD-21	2014-02-07 10:43:00	Primary Sample	300.0	Nitrate-NO3	23000	µg/L	Primary Result		J	IV	H	31419B
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Arsenic	0.00037	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Arsenic, Dissolved	0.00037	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Cobalt	0.00018	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Cobalt, Dissolved	0.000071	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Copper, Dissolved	0.00074	mg/L	Primary Result	J	U	IV	F	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Lead	0.0006	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Nickel	0.00061	mg/L	Primary Result	J	U	IV	F	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Nickel, Dissolved	0.00099	mg/L	Primary Result	J	U	IV	F	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Selenium	0.0037	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Selenium, Dissolved	0.0035	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Vanadium	0.0011	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6020	Vanadium, Dissolved	0.00099	mg/L	Primary Result	J	J	IV	TR	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	6860	Perchlorate	4.1	µg/L	Primary Result		J	V	L	31419B
RD-21	2014-02-07 10:43:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	J	UJ	IV	F; S	31598P
RD-21	2014-02-07 10:43:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; T; F; S	31419B
RD-21	2014-02-07 10:43:00	Primary Sample	8260B	Carbon Tetrachloride	14	µg/L	Primary Result		J	V	S	31419B
RD-21	2014-02-07 10:43:00	Primary Sample	8260B	Chloroform	5	µg/L	Primary Result		J	V	S	31419B
RD-21	2014-02-07 10:43:00	Primary Sample	8260B	cis-1,2-Dichloroethene	1.7	µg/L	Primary Result		J	V	S	31419B
RD-22	2014-02-12 08:46:00	Primary Sample	6020	Arsenic	0.00039	mg/L	Primary Result	J	J	V	TR	31438A
RD-22	2014-02-12 08:46:00	Primary Sample	6020	Nickel, Dissolved	0.00065	mg/L	Primary Result	J	J	V	TR	31438A
RD-22	2014-02-12 08:46:00	Primary Sample	6020	Zinc	0.0096	mg/L	Primary Result	JB	U	V	B	31438A
RD-22	2014-02-12 08:46:00	Primary Sample	6020	Zinc, Dissolved	0.007	mg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	300.0	Fluoride	0.47	mg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	6020	Arsenic	0.0015	mg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	6020	Arsenic, Dissolved	0.0019	mg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	6020	Cobalt, Dissolved	0.00082	mg/L	Primary Result	J	J	V	TR	31438A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-23	2014-02-12 10:30:00	Primary Sample	6020	Lead	0.00059	mg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	6020	Nickel	0.0012	mg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	6020	Zinc	0.0079	mg/L	Primary Result	JB	U	V	B	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	6020	Zinc, Dissolved	0.006	mg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	8015B	Diesel Range Organics (C8-C30)	17	µg/L	Primary Result		J	IV	L	31598S
RD-23	2014-02-12 10:30:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	86	µg/L	Primary Result	JB	J	IV	S; TR; Q	31598S
RD-23	2014-02-12 10:30:00	Primary Sample	8260B	1,1-Dichloroethane	0.61	µg/L	Primary Result	J	J	V	TR	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	8260B	trans-1,2-Dichloroethene	81	µg/L	Primary Result		J	V	S	31438A
RD-23	2014-02-12 10:30:00	Primary Sample	8260B	Trichloroethene	160	µg/L	Primary Result		J	V	S	31438A
RD-24	2014-02-13 11:42:00	Primary Sample	6020	Arsenic	0.00058	mg/L	Primary Result	J	J	IV	TR	31598T
RD-24	2014-02-13 11:42:00	Primary Sample	6020	Cadmium	0.00015	mg/L	Primary Result	J	J	IV	TR	31598T
RD-24	2014-02-13 11:42:00	Primary Sample	6020	Chromium	0.003	mg/L	Primary Result	J	J	IV	TR	31598T
RD-24	2014-02-13 11:42:00	Primary Sample	6020	Cobalt	0.00039	mg/L	Primary Result	J	J	IV	TR	31598T
RD-24	2014-02-13 11:42:00	Primary Sample	6020	Cobalt, Dissolved	0.00024	mg/L	Primary Result	J	J	IV	TR	31598T
RD-24	2014-02-13 11:42:00	Primary Sample	6020	Vanadium	0.00058	mg/L	Primary Result	J	J	IV	TR	31598T
RD-27	2014-02-10 14:24:00	Primary Sample	6020	Arsenic	0.0012	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-27	2014-02-10 14:24:00	Primary Sample	6020	Arsenic, Dissolved	0.00038	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-27	2014-02-10 14:24:00	Primary Sample	6020	Cobalt	0.000054	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-27	2014-02-10 14:24:00	Primary Sample	6020	Nickel	0.00043	mg/L	Primary Result	J	J	IV	TR	31598Q
RD-27	2014-02-10 14:24:00	Primary Sample	6020	Thallium	0.000072	mg/L	Primary Result	JB	U	IV	B	31598Q
RD-27	2014-02-10 14:24:00	Primary Sample	6020	Tin	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31598Q
RD-27	2014-02-10 14:24:00	Primary Sample	6020	Tin, Dissolved	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31598Q
RD-27	2014-02-10 14:24:00	Primary Sample	8260B	Acetone	2.1	µg/L	Primary Result	J	J	V	TR	31419C
RD-29	2014-02-07 08:38:00	Primary Sample	300.0	Nitrate-NO3	8400	µg/L	Primary Result		J	IV	H	31419B
RD-29	2014-02-07 08:38:00	Primary Sample	905.0	Strontium-90, Particulate	0.87	pCi/L	Primary Result	J	J	IV	TR	31606F
RD-29	2014-02-07 08:38:00	Primary Sample	6020	Arsenic	0.00066	mg/L	Primary Result	J	J	IV	TR	31598P
RD-29	2014-02-07 08:38:00	Primary Sample	6020	Chromium	0.001	mg/L	Primary Result	J	J	IV	TR	31598P
RD-29	2014-02-07 08:38:00	Primary Sample	6020	Cobalt	0.00069	mg/L	Primary Result	J	J	IV	TR	31598P
RD-29	2014-02-07 08:38:00	Primary Sample	6020	Cobalt, Dissolved	0.0006	mg/L	Primary Result	J	J	IV	TR	31598P
RD-29	2014-02-07 08:38:00	Primary Sample	6020	Lead	0.0018	mg/L	Primary Result	J	J	IV	TR	31598P
RD-29	2014-02-07 08:38:00	Primary Sample	6020	Lead, Dissolved	0.0011	mg/L	Primary Result	J	J	IV	TR	31598P
RD-29	2014-02-07 08:38:00	Primary Sample	6020	Vanadium	0.0013	mg/L	Primary Result	J	J	IV	TR	31598P
RD-29	2014-02-07 08:38:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	27	µg/L	Primary Result	J	J	V	TR	31419B
RD-29	2014-02-07 08:38:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	IV	B; T	31612L
RD-29	2014-02-07 08:38:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.18	µg/L	Primary Result	J	J	IV	TR	31612L
RD-29	2014-02-07 08:38:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	IV	C	31612L
RD-29	2014-02-07 08:38:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	IV	C	31612L
RD-29	2014-02-07 08:38:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	IV	C	31612L
RD-29	2014-02-07 08:38:00	Primary Sample	EiChrom Am-01	Americium-241, Particulate	0.008	pCi/L	Primary Result	U	UJ	IV	*VII	31606F
RD-29	2014-02-07 08:38:00	Primary Sample	EiChrom Am-01	Curium-243/244, Particulate	-0.034	pCi/L	Primary Result	U	UJ	IV	*VII	31606F
RD-31	2014-02-10 13:30:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	9.7	µg/L	Primary Result	JB	U	V	B	31419C
RD-31	2014-02-10 13:30:00	Primary Sample	8270C SIM	Butyl benzyl phthalate	0.024	µg/L	Primary Result	J	J	V	TR	31419C
RD-31	2014-02-10 13:30:00	Primary Sample	8270C SIM	Diethyl phthalate	9.7	µg/L	Primary Result	JB	U	V	B	31419C
RD-31	2014-02-10 13:30:00	Primary Sample	8270C SIM	Di-n-butyl phthalate	9.7	µg/L	Primary Result	JB	U	V	B	31419C
RD-32	2014-01-23 13:19:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31345B
RD-32	2014-01-23 13:19:00	Field Duplicate	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31345B



**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-32	2014-01-23 13:19:00	Primary Sample	8270C SIM	Fluoranthene	0.02	µg/L	Primary Result	J	J	IV	TR	31612D
RD-32	2014-01-23 13:19:00	Primary Sample	8270C SIM	Indeno(1,2,3-cd)pyrene	0.014	µg/L	Primary Result	U	UJ	IV	C	31612D
RD-32	2014-01-23 13:19:00	Primary Sample	8270C SIM	Pyrene	0.049	µg/L	Primary Result	J	J	IV	TR	31612D
RD-33A	2014-02-12 08:21:00	Primary Sample	900.0	Gross Alpha, Dissolved	2.9	pCi/L	Primary Result	J	J	V	TR; E	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	900.0	Gross alpha, Particulate	-0.034	pCi/L	Primary Result	U	UJ	V	E	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	901.1	Europium-152, Particulate	7	pCi/L	Primary Result	UI	R	IV	*VIII	31606I
RD-33A	2014-02-12 08:21:00	Primary Sample	906.0	Tritium	360	pCi/L	Primary Result	J	J	IV	TR	31612P
RD-33A	2014-02-12 08:21:00	Primary Sample	908.0	Uranium, Dissolved	1.8	pCi/L	Primary Result		J	V	*VII	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	908.0	Uranium, Particulate	0.16	pCi/L	Primary Result	U	UJ	V	*VII	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	908.0	Uranium-233/234, Dissolved	3.1	pCi/L	Primary Result	J	J	V	*VII	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.041	pCi/L	Primary Result	U	UJ	V	*VII	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	908.0	Uranium-235, Dissolved	0.26	pCi/L	Primary Result	J	J	V	TR; *VII	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	908.0	Uranium-235, Particulate	0.1	pCi/L	Primary Result	U	UJ	V	*VII	31547E
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Arsenic	0.002	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Arsenic, Dissolved	0.0017	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Cobalt	0.000081	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Cobalt, Dissolved	0.00012	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Copper, Dissolved	0.0013	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Lead, Dissolved	0.00045	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Nickel	0.0011	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Nickel, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Thallium	0.000053	mg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	6020	Thallium, Dissolved	0.000057	mg/L	Primary Result	JB	U	V	B	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	8260B	1,1-Dichloroethane	0.41	µg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	8260B	1,1-Dichloroethene	0.72	µg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	8260B	Toluene	0.25	µg/L	Primary Result	J	J	V	TR	31438A
RD-33A	2014-02-12 08:21:00	Primary Sample	8260B SIM	1,4-Dioxane	1.6	µg/L	Primary Result	J	J	V	TR	31438A
RD-33B	2014-02-06 08:46:00	Primary Sample	300.0	Fluoride	0.44	mg/L	Primary Result	JB	U	V	B	31419A
RD-33B	2014-02-06 08:46:00	Primary Sample	900.0	Gross Alpha, Dissolved	2.3	pCi/L	Primary Result	J	J	V	TR; E	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	900.0	Gross alpha, Particulate	0.033	pCi/L	Primary Result	U	UJ	V	E	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	900.0	Gross Beta, Dissolved	4.3	pCi/L	Primary Result	J	J	V	TR	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	908.0	Uranium, Dissolved	0.14	pCi/L	Primary Result	J	UJ	V	B; *VII	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	908.0	Uranium, Particulate	0.16	pCi/L	Primary Result	J	J	V	TR; *VII	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.081	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.039	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	908.0	Uranium-235, Dissolved	0.029	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	908.0	Uranium-235, Particulate	0.019	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33B	2014-02-06 08:46:00	Primary Sample	6020	Cobalt	0.00015	mg/L	Primary Result	J	J	V	TR	31419A
RD-33B	2014-02-06 08:46:00	Primary Sample	6020	Nickel	0.00055	mg/L	Primary Result	J	J	V	TR	31419A
RD-33B	2014-02-06 08:46:00	Primary Sample	6020	Nickel, Dissolved	0.0005	mg/L	Primary Result	J	J	V	TR	31419A
RD-33B	2014-02-06 08:46:00	Primary Sample	6020	Zinc, Dissolved	0.006	mg/L	Primary Result	J	J	V	TR	31419A
RD-33B	2014-02-06 08:46:00	Primary Sample	6860	Perchlorate	0.0088	µg/L	Primary Result	U	UJ	V	L	31419A
RD-33B	2014-02-06 08:46:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	T	31419A
RD-33B	2014-02-06 08:46:00	Primary Sample	EiChrom Am-01	Curium-245/246, Particulate	0.2	pCi/L	Primary Result	U	R	IV	*IX	31606E
RD-33C	2014-02-06 10:56:00	Primary Sample	900.0	Gross Alpha, Dissolved	0.81	pCi/L	Primary Result	U	UJ	V	E	31547B

**TABLE B-3  
SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION  
SANTA SUSANA FIELD LABORATORY  
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Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-33C	2014-02-06 10:56:00	Primary Sample	900.0	Gross alpha, Particulate	1.7	pCi/L	Primary Result		J	V	E	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	900.0	Gross Beta, Dissolved	4.6	pCi/L	Primary Result	J	J	V	TR	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	900.0	Gross beta, Particulate	1.9	pCi/L	Primary Result	J	J	V	TR	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	901.1	Europium-154, Particulate	4.3	pCi/L	Primary Result	UI	R	V	*VIII	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	908.0	Uranium, Dissolved	0.09	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	908.0	Uranium, Particulate	0.03	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.17	pCi/L	Primary Result	J	J	V	TR; *VII	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.11	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	908.0	Uranium-235, Dissolved	0.038	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	908.0	Uranium-235, Particulate	0.042	pCi/L	Primary Result	U	UJ	V	*VII	31547B
RD-33C	2014-02-06 10:56:00	Primary Sample	6020	Cobalt	0.00019	mg/L	Primary Result	J	J	V	TR	31419A
RD-33C	2014-02-06 10:56:00	Primary Sample	6020	Lead	0.0013	mg/L	Primary Result	J	J	V	TR	31419A
RD-33C	2014-02-06 10:56:00	Primary Sample	6020	Nickel	0.00045	mg/L	Primary Result	J	J	V	TR	31419A
RD-33C	2014-02-06 10:56:00	Primary Sample	6020	Nickel, Dissolved	0.00068	mg/L	Primary Result	J	J	V	TR	31419A
RD-33C	2014-02-06 10:56:00	Primary Sample	6020	Zinc, Dissolved	0.0041	mg/L	Primary Result	J	J	V	TR	31419A
RD-33C	2014-02-06 10:56:00	Primary Sample	6860	Perchlorate	0.0088	µg/L	Primary Result	U	UJ	V	L	31419A
RD-33C	2014-02-06 10:56:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	T	31419A
RD-34A	2014-02-11 09:05:00	Primary Sample	300.0	Fluoride	0.48	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	900.0	Gross Alpha, Dissolved	13	pCi/L	Primary Result		J	V	E; L	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	900.0	Gross alpha, Particulate	2.2	pCi/L	Primary Result		J	V	E; L	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	901.1	Europium-154, Dissolved	8	pCi/L	Primary Result	UI	R	V	*VIII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	901.1	Europium-154, Particulate	1.8	pCi/L	Primary Result	UI	R	V	*VIII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	908.0	Uranium, Dissolved	8.3	pCi/L	Primary Result		J	V	*VII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	908.0	Uranium, Particulate	0.07	pCi/L	Primary Result	U	UJ	V	*VII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	908.0	Uranium-233/234, Dissolved	7.9	pCi/L	Primary Result		J	V	*VII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.3	pCi/L	Primary Result		J	V	*VII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	908.0	Uranium-235, Dissolved	0.55	pCi/L	Primary Result		J	V	*VII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	908.0	Uranium-235, Particulate	0.058	pCi/L	Primary Result	U	UJ	V	*VII	31547D
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Antimony	0.00073	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Antimony, Dissolved	0.00056	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Beryllium	0.00008	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Cobalt	0.00066	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Cobalt, Dissolved	0.00038	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Nickel	0.00071	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Nickel, Dissolved	0.0011	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Thallium	0.00014	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6020	Thallium, Dissolved	0.00016	mg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	6010B	Sodium, Dissolved	69	mg/L	Primary Result	B	J	V	A	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	11	µg/L	Primary Result	J	U	V	T	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.56	µg/L	Primary Result	J	J	V	TR	31419E
RD-34A	2014-02-11 09:05:00	Primary Sample	8260B	Trichloroethene	0.98	µg/L	Primary Result	J	J	V	TR	31419E
RD-34C	2014-02-11 08:41:00	Primary Sample	300.0	Fluoride	0.39	mg/L	Primary Result	J	J	V	TR	31419E
RD-34C	2014-02-11 08:41:00	Primary Sample	900.0	Gross Alpha, Dissolved	3.3	pCi/L	Primary Result		J	V	Q; E; L	31547D
RD-34C	2014-02-11 08:41:00	Primary Sample	900.0	Gross alpha, Particulate	0.78	pCi/L	Primary Result		J	V	E; L	31547D
RD-34C	2014-02-11 08:41:00	Primary Sample	906.0	Tritium	350	pCi/L	Primary Result	J	J	IV	TR	31612N
RD-34C	2014-02-11 08:41:00	Primary Sample	908.0	Uranium, Particulate	0.056	pCi/L	Primary Result	U	UJ	V	*VII	31547D

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-34C	2014-02-11 08:41:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.21	pCi/L	Primary Result	J	J	V	TR	31547D
RD-34C	2014-02-11 08:41:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.12	pCi/L	Primary Result	J	J	V	TR; *VII	31547D
RD-34C	2014-02-11 08:41:00	Primary Sample	908.0	Uranium-235, Particulate	0.15	pCi/L	Primary Result	U	UJ	V	*VII	31547D
RD-34C	2014-02-11 08:41:00	Primary Sample	6020	Cobalt	0.00036	mg/L	Primary Result	J	J	V	TR	31419E
RD-34C	2014-02-11 08:41:00	Primary Sample	6020	Lead	0.0012	mg/L	Primary Result	J	J	V	TR	31419E
RD-34C	2014-02-11 08:41:00	Primary Sample	6020	Nickel	0.00035	mg/L	Primary Result	J	J	V	TR	31419E
RD-34C	2014-02-11 08:41:00	Primary Sample	6010B	Sodium, Dissolved	40	mg/L	Primary Result	B	J	V	A	31419E
RD-35B	2014-02-03 13:10:00	Primary Sample	8260B	Acetone	100	µg/L	Primary Result	JB	U	V	B; T	31380C
RD-35B	2014-02-03 13:10:00	Primary Sample	8260B	Vinyl chloride	3.7	µg/L	Primary Result	J	J	V	TR	31380C
RD-36B	2014-01-28 12:53:00	Primary Sample	300.0	Fluoride	0.18	mg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	6020	Antimony, Dissolved	0.00047	mg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	6020	Selenium	0.00089	mg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	6020	Selenium, Dissolved	0.0011	mg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	6020	Zinc	0.0043	mg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	6020	Zinc, Dissolved	0.007	mg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	0.81	pg/L	Primary Result	JBQC	U	V	B	31361C
RD-36B	2014-01-28 12:53:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	J	UJ	V	S; T	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8260B	2-Chloroethylvinyl ether	0.69	µg/L	Primary Result	U	UJ	V	S	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8260B	Acrolein	2.8	µg/L	Primary Result	U	UJ	V	S	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8260B	Acrylonitrile	1.4	µg/L	Primary Result	U	UJ	V	S	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8260B	Chloroform	0.59	µg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.27	µg/L	Primary Result	J	J	V	TR	31345E
RD-36B	2014-01-28 12:53:00	Primary Sample	8270C	Diethyl phthalate	1	µg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Field Duplicate	300.0	Fluoride	0.34	mg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	300.0	Fluoride	0.39	mg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	350.1	Ammonia-N	0.049	mg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Field Duplicate	350.1	Ammonia-N	0.069	mg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	6020	Lead	0.00024	mg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	6020	Zinc, Dissolved	0.009	mg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Field Duplicate	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	J	U	V	T	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	J	U	V	T	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	1,2-Dichloro-1,1,2-trifluoroethane	1.3	µg/L	Primary Result	J	J	IV	TR	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	1,2-Dichloro-1,1,2-trifluoroethane	1.3	µg/L	Primary Result	J	J	IV	TR	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	Acetone	26	µg/L	Primary Result		U	IV	T	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	Acetone	24	µg/L	Primary Result		U	IV	T	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	Carbon Disulfide	0.45	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	Carbon Disulfide	0.45	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	Isopropanol	13	µg/L	Primary Result	U	UJ	IV	R	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	Isopropanol	13	µg/L	Primary Result	U	UJ	IV	R	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	IV	C	31598G

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	n-Butylbenzene	0.32	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	n-Butylbenzene	0.32	µg/L	Primary Result	U	UJ	IV	C	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	tert-Butyl alcohol	11	µg/L	Primary Result	U	UJ	IV	R	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	tert-Butyl alcohol	11	µg/L	Primary Result	U	UJ	IV	R	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	Tetrahydrofuran	2	µg/L	Primary Result	U	UJ	IV	R	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	Tetrahydrofuran	2	µg/L	Primary Result	U	UJ	IV	R	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	Toluene	0.18	µg/L	Primary Result	J	J	IV	TR	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	Toluene	0.18	µg/L	Primary Result	J	J	IV	TR	31598G
RD-36C	2014-01-28 11:10:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.27	µg/L	Primary Result	J	J	IV	TR	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8260B	trans-1,2-Dichloroethene	0.44	µg/L	Primary Result	J	J	IV	TR	31598G
RD-36C	2014-01-28 11:10:00	Field Duplicate	8270C	bis(2-Ethylhexyl) phthalate	1.4	µg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	8270C	bis(2-Ethylhexyl) phthalate	1.1	µg/L	Primary Result	J	J	V	TR	31345E
RD-36C	2014-01-28 11:10:00	Primary Sample	8270C	Diethyl phthalate	0.79	µg/L	Primary Result	J	J	V	TR	31345E
RD-36D	2014-01-28 09:01:00	Primary Sample	300.0	Fluoride	0.19	mg/L	Primary Result	J	J	V	TR	31345E
RD-36D	2014-01-28 09:01:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345E
RD-36D	2014-01-28 09:01:00	Primary Sample	8260B	Toluene	0.27	µg/L	Primary Result	J	J	V	TR	31345E
RD-36D	2014-01-28 09:01:00	Primary Sample	8270C	Diethyl phthalate	0.47	µg/L	Primary Result	J	J	V	TR	31345E
RD-37	2014-02-03 08:50:00	Primary Sample	300.0	Fluoride	0.077	mg/L	Primary Result	J	J	V	TR	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	300.0	Nitrate-NO3	1200	µg/L	Primary Result	J	J	V	TR	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	6020	Antimony	0.00054	mg/L	Primary Result	J	U	IV	B	31598K
RD-37	2014-02-03 08:50:00	Primary Sample	6020	Barium, Dissolved	0.057	mg/L	Primary Result		J	IV	A	31598K
RD-37	2014-02-03 08:50:00	Primary Sample	6020	Lead, Dissolved	0.00096	mg/L	Primary Result	J	J	IV	TR	31598K
RD-37	2014-02-03 08:50:00	Primary Sample	6020	Molybdenum	0.00016	mg/L	Primary Result	J	U	IV	B	31598K
RD-37	2014-02-03 08:50:00	Primary Sample	6020	Zinc	0.0027	mg/L	Primary Result	J	J	IV	TR	31598K
RD-37	2014-02-03 08:50:00	Primary Sample	6020	Zinc, Dissolved	0.0052	mg/L	Primary Result	JB	U	IV	B	31598K
RD-37	2014-02-03 08:50:00	Primary Sample	8082	Aroclor 1016	0.12	µg/L	Primary Result	U	UJ	V	S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8082	Aroclor 1221	0.21	µg/L	Primary Result	U	UJ	V	S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8082	Aroclor 1232	0.16	µg/L	Primary Result	U	UJ	V	S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8082	Aroclor 1242	0.1	µg/L	Primary Result	U	UJ	V	S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8082	Aroclor 1248	0.088	µg/L	Primary Result	U	UJ	V	S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8082	Aroclor 1254	0.11	µg/L	Primary Result	U	UJ	V	S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8082	Aroclor 1260	0.15	µg/L	Primary Result	U	UJ	V	S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1.2	pg/L	Primary Result	JBQC	U	V	B	31361G
RD-37	2014-02-03 08:50:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.47	pg/L	Primary Result	JQC	J	V	TR	31361G
RD-37	2014-02-03 08:50:00	Primary Sample	8290	Octachlorodibenzofuran	0.12	pg/L	Primary Result	JBQC	U	V	B	31361G
RD-37	2014-02-03 08:50:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	10	pg/L	Primary Result	JB	U	V	B	31361G
RD-37	2014-02-03 08:50:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; S	31380C
RD-37	2014-02-03 08:50:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.22	µg/L	Primary Result	J	J	V	S; TR	31380C
RD-38B	2014-01-28 08:49:00	Primary Sample	300.0	Fluoride	0.28	mg/L	Primary Result	J	J	V	TR	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	350.1	Ammonia-N	0.028	mg/L	Primary Result	J	J	V	TR	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	6020	Antimony	0.00052	mg/L	Primary Result	J	J	V	TR	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	6020	Antimony, Dissolved	0.00051	mg/L	Primary Result	J	J	V	TR	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	6020	Lead, Dissolved	0.00021	mg/L	Primary Result	J	J	V	TR	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	6020	Molybdenum	0.0014	mg/L	Primary Result	J	J	V	TR	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	6020	Molybdenum, Dissolved	0.0015	mg/L	Primary Result	J	J	V	TR	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	8260B	2-Chloroethylvinyl ether	0.69	µg/L	Primary Result	U	UJ	V	S	31345E

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-38B	2014-01-28 08:49:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; T; S	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	8260B	Acrolein	2.8	µg/L	Primary Result	U	UJ	V	S	31345E
RD-38B	2014-01-28 08:49:00	Primary Sample	8260B	Acrylonitrile	1.4	µg/L	Primary Result	U	UJ	V	S	31345E
RD-39B	2014-01-28 11:07:00	Primary Sample	300.0	Fluoride	0.18	mg/L	Primary Result	J	J	V	TR	31345E
RD-39B	2014-01-28 11:07:00	Primary Sample	6860	Perchlorate	0.0088	µg/L	Primary Result	U	UJ	V	Q	31345E
RD-39B	2014-01-28 11:07:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345E
RD-43A	2014-01-23 08:34:00	Primary Sample	300.0	Fluoride	0.4	mg/L	Primary Result	J	J	V	TR	31345B
RD-43A	2014-01-23 08:34:00	Primary Sample	300.0	Nitrate-NO3	470	µg/L	Primary Result	JHTV	J	V	H; TR	31345B
RD-43A	2014-01-23 08:34:00	Primary Sample	6020	Antimony	0.00075	mg/L	Primary Result	J	U	IV	B	31598D
RD-43A	2014-01-23 08:34:00	Primary Sample	6020	Antimony, Dissolved	0.00041	mg/L	Primary Result	J	U	IV	B	31598D
RD-43A	2014-01-23 08:34:00	Primary Sample	6020	Copper, Dissolved	0.0007	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43A	2014-01-23 08:34:00	Primary Sample	6020	Molybdenum	0.0013	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43A	2014-01-23 08:34:00	Primary Sample	6020	Molybdenum, Dissolved	0.0013	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43A	2014-01-23 08:34:00	Primary Sample	6020	Thallium	0.00012	mg/L	Primary Result	J	U	IV	B	31598D
RD-43A	2014-01-23 08:34:00	Primary Sample	6020	Thallium, Dissolved	0.000072	mg/L	Primary Result	J	U	IV	B	31598D
RD-43A	2014-01-23 08:34:00	Primary Sample	8260B	Acetone	15	µg/L	Primary Result	B	U	V	B; T	31345B
RD-43A	2014-01-23 08:34:00	Primary Sample	9040B	pH	7.08	pH Units	Primary Result	HTV	J	V	H	31345B
RD-43B	2014-01-23 12:58:00	Primary Sample	300.0	Fluoride	0.36	mg/L	Primary Result	J	J	V	TR	31345B
RD-43B	2014-01-23 12:58:00	Primary Sample	300.0	Nitrate-NO3	190	µg/L	Primary Result	U	UJ	V	H	31345B
RD-43B	2014-01-23 12:58:00	Primary Sample	350.1	Ammonia-N	0.048	mg/L	Primary Result	J	J	V	TR	31345B
RD-43B	2014-01-23 12:58:00	Primary Sample	6020	Copper	0.0011	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43B	2014-01-23 12:58:00	Primary Sample	6020	Molybdenum	0.0013	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43B	2014-01-23 12:58:00	Primary Sample	6020	Molybdenum, Dissolved	0.0011	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43B	2014-01-23 12:58:00	Primary Sample	8315	Formaldehyde	9	µg/L	Primary Result	J	J	V	TR	31345B
RD-43B	2014-01-23 12:58:00	Primary Sample	6010B	Boron	0.038	mg/L	Primary Result	JB	U	IV	B	31598D
RD-43B	2014-01-23 12:58:00	Primary Sample	6010B	Boron, Dissolved	0.03	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43C	2014-01-23 09:45:00	Primary Sample	300.0	Fluoride	0.36	mg/L	Primary Result	J	J	V	TR	31345B
RD-43C	2014-01-23 09:45:00	Primary Sample	300.0	Nitrate-NO3	190	µg/L	Primary Result	UHTV	UJ	V	H	31345B
RD-43C	2014-01-23 09:45:00	Primary Sample	350.1	Ammonia-N	0.047	mg/L	Primary Result	J	J	V	TR	31345B
RD-43C	2014-01-23 09:45:00	Primary Sample	6020	Lead	0.0002	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43C	2014-01-23 09:45:00	Primary Sample	6020	Molybdenum	0.001	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43C	2014-01-23 09:45:00	Primary Sample	6020	Molybdenum, Dissolved	0.0011	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43C	2014-01-23 09:45:00	Primary Sample	6020	Zinc, Dissolved	0.0055	mg/L	Primary Result	JB	U	IV	B	31598D
RD-43C	2014-01-23 09:45:00	Primary Sample	6860	Perchlorate	0.03	µg/L	Primary Result	J	J	IV	TR	31612D
RD-43C	2014-01-23 09:45:00	Primary Sample	8315	Formaldehyde	9.9	µg/L	Primary Result	J	J	IV	TR	31612D
RD-43C	2014-01-23 09:45:00	Primary Sample	6010B	Boron	0.042	mg/L	Primary Result	JB	J	IV	TR	31598D
RD-43C	2014-01-23 09:45:00	Primary Sample	6010B	Boron, Dissolved	0.036	mg/L	Primary Result	J	J	IV	TR	31598D
RD-43C	2014-01-23 09:45:00	Primary Sample	8260B	Acetone	12	µg/L	Primary Result		UJ	V	T; S	31345B
RD-43C	2014-01-23 09:45:00	Primary Sample	8270C	Diethyl phthalate	5	µg/L	Primary Result	J	J	IV	TR	31612D
RD-43C	2014-01-23 09:45:00	Primary Sample	9040B	pH	7.37	pH Units	Primary Result	HTV	J	V	H	31345B
RD-44	2014-01-21 10:27:00	Primary Sample	6020	Lead	0.00032	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Primary Sample	6020	Molybdenum	0.0016	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Field Duplicate	6020	Molybdenum	0.0016	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Primary Sample	6020	Molybdenum, Dissolved	0.0016	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Field Duplicate	6020	Molybdenum, Dissolved	0.0015	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Primary Sample	6020	Nickel	0.00062	mg/L	Primary Result	J	J	V	TR	31307A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
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Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-44	2014-01-21 10:27:00	Field Duplicate	6020	Nickel	0.00093	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Primary Sample	6020	Nickel, Dissolved	0.0006	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Field Duplicate	6020	Nickel, Dissolved	0.00089	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Primary Sample	6020	Thallium	0.000094	mg/L	Primary Result	J	J	V	TR	31307A
RD-44	2014-01-21 10:27:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31307A
RD-44	2014-01-21 10:27:00	Field Duplicate	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31307A
RD-45A	2014-01-30 09:48:00	Primary Sample	300.0	Fluoride	0.32	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	350.1	Ammonia-N	0.056	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Arsenic	0.0025	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Arsenic, Dissolved	0.0028	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Beryllium, Dissolved	0.000095	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Molybdenum	0.0059	mg/L	Primary Result	JB	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Molybdenum, Dissolved	0.0065	mg/L	Primary Result	JB	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Thallium, Dissolved	0.000057	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Zinc	0.0069	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6020	Zinc, Dissolved	0.0097	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.59	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.68	pg/L	Primary Result	JQC	J	IV	*I; TR	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.77	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.45	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.41	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1.1	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzofuran	0.47	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.99	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzofuran	0.79	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1.2	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.4	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.72	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	2,3,7,8-TCDD	2.2	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	2,3,7,8-Tetrachlorodibenzofuran	1.2	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	Octachlorodibenzofuran	1.3	pg/L	Primary Result	U	UJ	IV	*I	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	2.2	pg/L	Primary Result	JBQC	UJ	IV	*I; B	31612H
RD-45A	2014-01-30 09:48:00	Primary Sample	6010B	Iron	0.056	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	6010B	Iron, Dissolved	0.026	mg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	8260B	1,1-Dichloroethane	0.33	µg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	8260B	1,1-Dichloroethene	0.9	µg/L	Primary Result	J	J	V	TR	31380A
RD-45A	2014-01-30 09:48:00	Primary Sample	8260B SIM	1,4-Dioxane	1.8	µg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	300.0	Fluoride	0.29	mg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	350.1	Ammonia-N	0.035	mg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	6020	Arsenic	0.0011	mg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	6020	Arsenic, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	6020	Molybdenum	0.0029	mg/L	Primary Result	JB	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	6020	Molybdenum, Dissolved	0.003	mg/L	Primary Result	JB	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.53	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.89	pg/L	Primary Result	U	UJ	V	*I	31361F

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.62	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.37	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.76	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.36	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.7	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzofuran	0.39	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.68	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzofuran	0.72	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	0.74	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.34	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.63	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	2,3,7,8-TCDD	1.7	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	2,3,7,8-Tetrachlorodibenzofuran	0.95	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	Octachlorodibenzofuran	0.78	pg/L	Primary Result	U	UJ	V	*I	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	2	pg/L	Primary Result	JBQC	UJ	V	*I; B	31361F
RD-45B	2014-01-30 13:25:00	Primary Sample	6010B	Boron	0.037	mg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	6010B	Boron, Dissolved	0.042	mg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	6010B	Iron, Dissolved	0.17	mg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.79	µg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8260B	Trichloroethene	0.75	µg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8260B SIM	1,4-Dioxane	0.94	µg/L	Primary Result	J	J	V	TR	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8270C	Butyl benzyl phthalate	0.95	µg/L	Primary Result	U	UJ	V	Q	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8270C	Diethyl phthalate	0.36	µg/L	Primary Result	U	UJ	V	Q	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8270C	Dimethyl phthalate	0.2	µg/L	Primary Result	U	UJ	V	Q	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8270C	Di-n-butyl phthalate	1.1	µg/L	Primary Result	U	UJ	V	Q	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	8270C	Di-n-octyl phthalate	0.33	µg/L	Primary Result	U	UJ	V	Q	31380A
RD-45B	2014-01-30 13:25:00	Primary Sample	DV-WC-0077	1,1-Dimethylhydrazine	1.9	µg/L	Primary Result	U	UJ	V	Q	31380A
RD-46A	2014-01-24 10:48:00	Primary Sample	300.0	Fluoride	0.37	mg/L	Primary Result	J	J	V	TR	31361A
RD-46A	2014-01-24 10:48:00	Primary Sample	350.1	Ammonia-N	0.077	mg/L	Primary Result	J	J	V	TR	31361A
RD-46B	2014-01-24 08:51:00	Primary Sample	300.0	Fluoride	0.24	mg/L	Primary Result	J	J	V	TR	31361A
RD-46B	2014-01-24 08:51:00	Primary Sample	350.1	Ammonia-N	0.054	mg/L	Primary Result	J	J	V	TR	31361A
RD-46B	2014-01-24 08:51:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.34	µg/L	Primary Result	J	J	V	TR	31361A
RD-46B	2014-01-24 08:51:00	Primary Sample	8260B	Toluene	0.88	µg/L	Primary Result	J	J	V	TR	31361A
RD-46B	2014-01-24 08:51:00	Primary Sample	8270C SIM	Naphthalene	0.13	µg/L	Primary Result	J	J	V	TR	31361A
RD-48B	2014-01-21 11:39:00	Primary Sample	300.0	Fluoride	0.6	mg/L	Primary Result	J	J	V	TR	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	300.0	Nitrate-NO3	2200000	µg/L	Primary Result	HTV	J	IV	H	31612B
RD-48B	2014-01-21 11:39:00	Primary Sample	350.1	Ammonia-N	0.18	mg/L	Primary Result	J	J	V	TR	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	6020	Antimony	0.00045	mg/L	Primary Result	J	J	V	TR	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	6020	Antimony, Dissolved	0.00049	mg/L	Primary Result	J	J	V	TR	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	6020	Cobalt	0.00081	mg/L	Primary Result	J	J	V	TR	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	6020	Cobalt, Dissolved	0.0009	mg/L	Primary Result	J	J	V	TR	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	1.8	pg/L	Primary Result	JBQC	U	V	B	31312A
RD-48B	2014-01-21 11:39:00	Primary Sample	6010B	Zirconium	0.0038	mg/L	Primary Result	JB	U	V	B	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31307A
RD-48B	2014-01-21 11:39:00	Primary Sample	9040B	pH	7.42	pH Units	Primary Result	HTV	J	V	H	31307A
RD-48C	2014-01-21 13:45:00	Primary Sample	300.0	Fluoride	0.26	mg/L	Primary Result	J	J	V	TR	31307A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-48C	2014-01-21 13:45:00	Primary Sample	350.1	Ammonia-N	0.13	mg/L	Primary Result	J	J	V	TR	31307A
RD-48C	2014-01-21 13:45:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	4.8	pg/L	Primary Result	JB	U	V	B	31312A
RD-48C	2014-01-21 13:45:00	Primary Sample	6010B	Zirconium	0.0048	mg/L	Primary Result	JB	U	V	B	31307A
RD-48C	2014-01-21 13:45:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31307A
RD-48C	2014-01-21 13:45:00	Primary Sample	9040B	pH	7.34	pH Units	Primary Result	HTV	J	V	H	31307A
RD-50	2014-02-12 10:52:00	Primary Sample	900.0	Gross Alpha, Dissolved	26	pCi/L	Primary Result		J	V	E	31547E
RD-50	2014-02-12 10:52:00	Primary Sample	900.0	Gross alpha, Particulate	0.17	pCi/L	Primary Result	U	UJ	V	E	31547E
RD-50	2014-02-12 10:52:00	Primary Sample	901.1	Europium-152, Particulate	6.5	pCi/L	Primary Result	UI	R	V	*VIII	31547E
RD-50	2014-02-12 10:52:00	Primary Sample	906.0	Tritium	360	pCi/L	Primary Result	J	J	V	TR	31547E
RD-50	2014-02-12 10:52:00	Primary Sample	908.0	Uranium, Dissolved	7.8	pCi/L	Primary Result		J	V	*VII	31547E
RD-50	2014-02-12 10:52:00	Primary Sample	908.0	Uranium-233/234, Dissolved	11	pCi/L	Primary Result		J	V	*VII	31547E
RD-50	2014-02-12 10:52:00	Primary Sample	908.0	Uranium-235, Dissolved	0.51	pCi/L	Primary Result		J	V	*VII	31547E
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Antimony	0.00048	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Antimony, Dissolved	0.00041	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Arsenic	0.0038	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Arsenic, Dissolved	0.003	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Cobalt	0.00038	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Cobalt, Dissolved	0.00037	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Copper	0.00059	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Lead	0.00078	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Lead, Dissolved	0.00036	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Nickel, Dissolved	0.00077	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Selenium	0.0027	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Selenium, Dissolved	0.0025	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Vanadium	0.0039	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	6020	Vanadium, Dissolved	0.0027	mg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	8015B	Diesel Range Organics (C8-C30)	7.2	mg/L	Primary Result		J	V	L	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	JB	U	V	B; F	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	8260B	1,1-Dichloroethane	0.41	µg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	8260B	1,1-Dichloroethene	0.75	µg/L	Primary Result	J	J	V	TR	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31438A
RD-50	2014-02-12 10:52:00	Primary Sample	8260B	Toluene	0.26	µg/L	Primary Result	J	J	V	TR	31438A
RD-51A	2014-01-27 08:55:00	Primary Sample	300.0	Fluoride	0.32	mg/L	Primary Result	J	J	V	TR	31345D
RD-51A	2014-01-27 08:55:00	Primary Sample	350.1	Ammonia-N	0.04	mg/L	Primary Result	J	J	V	TR	31345D
RD-51A	2014-01-27 08:55:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; T; S	31345D
RD-51A	2014-01-27 08:55:00	Primary Sample	8260B	cis-1,2-Dichloroethene	5	µg/L	Primary Result		J	V	S	31345D
RD-51A	2014-01-27 08:55:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.27	µg/L	Primary Result	J	J	V	S; TR	31345D
RD-51A	2014-01-27 08:55:00	Primary Sample	8260B	Trichloroethene	6.3	µg/L	Primary Result		J	V	Q; S	31345D
RD-51A	2014-01-27 08:55:00	Primary Sample	8260B	Vinyl chloride	0.74	µg/L	Primary Result	J	J	V	S; TR	31345D
RD-51B	2014-01-27 13:13:00	Primary Sample	300.0	Fluoride	0.23	mg/L	Primary Result	J	J	V	TR	31345D
RD-51B	2014-01-27 13:13:00	Primary Sample	350.1	Ammonia-N	0.12	mg/L	Primary Result	J	J	V	TR	31345D
RD-51B	2014-01-27 13:13:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; T; S	31345D
RD-51B	2014-01-27 13:13:00	Primary Sample	8260B	cis-1,2-Dichloroethene	3.2	µg/L	Primary Result		J	V	S	31345D
RD-51B	2014-01-27 13:13:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.28	µg/L	Primary Result	J	J	V	S; TR	31345D
RD-51B	2014-01-27 13:13:00	Primary Sample	8260B	Trichloroethene	1.9	µg/L	Primary Result		J	V	S	31345D
RD-51B	2014-01-27 13:13:00	Primary Sample	8260B	Vinyl chloride	2.2	µg/L	Primary Result		J	V	S	31345D



**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-51C	2014-01-27 11:51:00	Primary Sample	300.0	Fluoride	0.17	mg/L	Primary Result	J	J	V	TR	31345D
RD-51C	2014-01-27 11:51:00	Primary Sample	350.1	Ammonia-N	0.13	mg/L	Primary Result	J	J	V	TR	31345D
RD-51C	2014-01-27 11:51:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	300.0	Fluoride	0.31	mg/L	Primary Result	J	J	V	TR	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	350.1	Ammonia-N	0.33	mg/L	Primary Result	J	J	V	TR	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	8260B	1,1-Dichloroethane	2.3	µg/L	Primary Result		J	V	S	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	8260B	1,1-Dichloroethene	5.4	µg/L	Primary Result		J	V	S	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	8260B	Acetone	20	µg/L	Primary Result	JB	UJ	V	B; T; S	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	8260B	cis-1,2-Dichloroethene	430	µg/L	Primary Result		J	V	S	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	8260B	trans-1,2-Dichloroethene	91	µg/L	Primary Result		J	V	S	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	8260B	Trichloroethene	780	µg/L	Primary Result		J	V	S	31345D
RD-52A	2014-01-27 09:47:00	Primary Sample	8260B	Vinyl chloride	36	µg/L	Primary Result		J	V	S	31345D
RD-52B	2014-01-27 08:30:00	Primary Sample	300.0	Fluoride	0.17	mg/L	Primary Result	J	J	V	TR	31345D
RD-52B	2014-01-27 08:30:00	Primary Sample	350.1	Ammonia-N	0.059	mg/L	Primary Result	J	J	V	TR	31345D
RD-52B	2014-01-27 08:30:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345D
RD-52B	2014-01-27 08:30:00	Primary Sample	8260B	Trichloroethene	0.23	µg/L	Primary Result	J	J	V	TR	31345D
RD-52B	2014-01-27 08:30:00	Primary Sample	8260B SIM	1,4-Dioxane	1.6	µg/L	Primary Result	J	J	V	TR	31345D
RD-52C	2014-01-27 13:22:00	Primary Sample	300.0	Fluoride	0.25	mg/L	Primary Result	J	J	V	TR	31345D
RD-52C	2014-01-27 13:22:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345D
RD-52C	2014-01-27 13:22:00	Primary Sample	8260B SIM	1,4-Dioxane	1.2	µg/L	Primary Result	J	J	V	TR	31345D
RD-54A	2014-02-12 10:36:00	Primary Sample	900.0	Gross Beta, Dissolved	5.1	pCi/L	Primary Result		J	V	L	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	900.0	Gross beta, Particulate	-1.1	pCi/L	Primary Result	U	UJ	V	L	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	906.0	Tritium	360	pCi/L	Primary Result	J	U	V	F	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	908.0	Uranium, Dissolved	1.6	pCi/L	Primary Result		J	V	*VII	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	908.0	Uranium, Particulate	0.26	pCi/L	Primary Result	J	J	V	TR	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	908.0	Uranium-233/234, Dissolved	3.2	pCi/L	Primary Result		J	V	*VII	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.22	pCi/L	Primary Result	J	J	V	TR	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	908.0	Uranium-235, Dissolved	0.1	pCi/L	Primary Result	U	UJ	V	*VII	31547E
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Antimony	0.00041	mg/L	Primary Result	J	U	V	F	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Antimony, Dissolved	0.00052	mg/L	Primary Result	J	U	V	F	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Arsenic	0.0015	mg/L	Primary Result	J	J	V	TR	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Arsenic, Dissolved	0.0017	mg/L	Primary Result	J	J	V	TR	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Cobalt	0.00024	mg/L	Primary Result	J	J	V	TR	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Cobalt, Dissolved	0.00024	mg/L	Primary Result	J	J	V	TR	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Copper, Dissolved	0.00065	mg/L	Primary Result	J	U	V	F	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Lead	0.00019	mg/L	Primary Result	J	J	V	TR	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Nickel	0.00044	mg/L	Primary Result	J	U	V	F	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Nickel, Dissolved	0.00081	mg/L	Primary Result	J	U	V	F	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Thallium	0.00011	mg/L	Primary Result	J	J	V	TR	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Thallium, Dissolved	0.00014	mg/L	Primary Result	JB	U	V	B	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Vanadium	0.00075	mg/L	Primary Result	J	J	V	TR	31438A
RD-54A	2014-02-12 10:36:00	Primary Sample	6020	Vanadium, Dissolved	0.0006	mg/L	Primary Result	J	J	V	TR	31438A
RD-54B	2014-02-12 08:25:00	Primary Sample	6020	Cobalt, Dissolved	0.000063	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54B	2014-02-12 08:25:00	Primary Sample	6020	Lead	0.0004	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54B	2014-02-12 08:25:00	Primary Sample	6020	Nickel, Dissolved	0.00059	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54B	2014-02-12 08:25:00	Primary Sample	6020	Thallium, Dissolved	0.000071	mg/L	Primary Result	JB	U	IV	B	31598S

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-54B	2014-02-12 08:25:00	Primary Sample	6020	Zinc, Dissolved	0.011	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54C	2014-02-12 13:41:00	Primary Sample	6020	Copper	0.00056	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54C	2014-02-12 13:41:00	Primary Sample	6020	Lead	0.00069	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54C	2014-02-12 13:41:00	Primary Sample	6020	Lead, Dissolved	0.00066	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54C	2014-02-12 13:41:00	Primary Sample	6020	Nickel	0.00062	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54C	2014-02-12 13:41:00	Primary Sample	6020	Nickel, Dissolved	0.00063	mg/L	Primary Result	J	J	IV	TR	31598S
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Acetone	1.9	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Tetrachloroethene	0.2	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Trichloroethene	0.16	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	V	S	31438A
RD-54C	2014-02-12 13:41:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	V	S	31438A
RD-55A	2014-01-28 08:30:00	Primary Sample	300.0	Fluoride	0.44	mg/L	Primary Result	J	J	V	TR	31345E
RD-55A	2014-01-28 08:30:00	Primary Sample	300.0	Nitrate-NO3	1300	µg/L	Primary Result	J	J	V	TR	31345E
RD-55A	2014-01-28 08:30:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; T; S	31345E
RD-55A	2014-01-28 08:30:00	Primary Sample	8260B	cis-1,2-Dichloroethene	20	µg/L	Primary Result		J	V	S	31345E
RD-55A	2014-01-28 08:30:00	Primary Sample	8260B	Tetrachloroethene	0.41	µg/L	Primary Result	J	J	V	S; TR	31345E
RD-55A	2014-01-28 08:30:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.24	µg/L	Primary Result	J	J	V	S; TR	31345E
RD-55A	2014-01-28 08:30:00	Primary Sample	8260B	Trichloroethene	12	µg/L	Primary Result		J	V	S	31345E
RD-55A	2014-01-28 08:30:00	Primary Sample	8260B	Vinyl chloride	0.15	µg/L	Primary Result	J	J	V	S; TR	31345E
RD-55B	2014-01-28 10:59:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31345E
RD-57	2014-02-13 07:23:00	Primary Sample	908.0	Uranium, Dissolved	1.1	pCi/L	Primary Result		J	V	*VII	31547F
RD-57	2014-02-13 07:23:00	Primary Sample	908.0	Uranium-233/234, Dissolved	1.6	pCi/L	Primary Result		J	V	*VII	31547F
RD-57	2014-02-13 07:23:00	Primary Sample	908.0	Uranium-235, Dissolved	0.22	pCi/L	Primary Result	J	J	V	TR; *VII	31547F
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Antimony	0.0026	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Antimony, Dissolved	0.0024	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Arsenic	0.0039	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Arsenic, Dissolved	0.0038	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Cobalt	0.00055	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Cobalt, Dissolved	0.00059	mg/L	Primary Result	J	J	V	TR	31438A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Thallium	0.00015	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Thallium, Dissolved	0.00014	mg/L	Primary Result	JB	U	V	B	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Vanadium	0.0063	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	6020	Vanadium, Dissolved	0.0055	mg/L	Primary Result	J	J	V	TR	31438A
RD-57	2014-02-12 11:20:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31438A
RD-58A	2014-01-23 10:24:00	Primary Sample	300.0	Fluoride	0.38	mg/L	Primary Result	J	J	V	TR	31345B
RD-58A	2014-01-23 10:24:00	Primary Sample	300.0	Nitrate-NO3	190	µg/L	Primary Result	UHTV	R	V	H	31345B
RD-58A	2014-01-23 10:24:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.97	µg/L	Primary Result	J	J	V	TR	31345B
RD-58A	2014-01-23 10:24:00	Primary Sample	8260B	Acetone	13	µg/L	Primary Result	B	U	V	B; T	31345B
RD-58A	2014-01-23 10:24:00	Primary Sample	8260B	Trichloroethene	110	µg/L	Primary Result		J	V	S	31345B
RD-58A	2014-01-23 10:24:00	Primary Sample	9040B	pH	7.29	pH Units	Primary Result	HTV	J	V	H	31345B
RD-58B	2014-01-23 08:47:00	Primary Sample	300.0	Fluoride	0.41	mg/L	Primary Result	J	J	V	TR	31345B
RD-58B	2014-01-23 08:47:00	Primary Sample	300.0	Nitrate-NO3	190	µg/L	Primary Result	UHTV	R	V	H	31345B
RD-58B	2014-01-23 08:47:00	Primary Sample	350.1	Ammonia-N	0.038	mg/L	Primary Result	J	J	V	TR	31345B
RD-58B	2014-01-23 08:47:00	Primary Sample	8315	Formaldehyde	8.9	µg/L	Primary Result	J	J	V	TR	31345B
RD-58B	2014-01-23 08:47:00	Primary Sample	8260B	Acetone	13	µg/L	Primary Result	B	U	V	B; T	31345B
RD-58B	2014-01-23 08:47:00	Primary Sample	9040B	pH	7.42	pH Units	Primary Result	HTV	J	V	H	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	300.0	Fluoride	0.28	mg/L	Primary Result	J	J	V	TR	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	300.0	Nitrate-NO3	190	µg/L	Primary Result	UHTV	R	V	H	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	350.1	Ammonia-N	0.06	mg/L	Primary Result	J	J	V	TR	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	8315	Formaldehyde	8.4	µg/L	Primary Result	J	J	V	TR	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	8260B	Acetone	16	µg/L	Primary Result	B	U	V	B; T	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.37	µg/L	Primary Result	J	J	V	TR	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	8260B	Vinyl chloride	0.46	µg/L	Primary Result	J	J	V	TR	31345B
RD-58C	2014-01-23 13:01:00	Primary Sample	9040B	pH	7.92	pH Units	Primary Result	HTV	J	V	H	31345B
RD-59A	2014-02-05 11:18:00	Primary Sample	900.0	Gross Alpha, Dissolved	2.9	pCi/L	Primary Result	U	UJ	V	L	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	900.0	Gross alpha, Particulate	0.39	pCi/L	Primary Result	J	J	V	TR	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	905.0	Strontium-90, Particulate	0.37	pCi/L	Primary Result	U	UJ	V	E	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	908.0	Uranium, Dissolved	0.46	pCi/L	Primary Result		J	V	*VII	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	908.0	Uranium, Particulate	0.063	pCi/L	Primary Result	U	UJ	V	E; *VII	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.89	pCi/L	Primary Result		J	V	*VII	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.079	pCi/L	Primary Result	U	UJ	V	*VII	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	908.0	Uranium-235, Dissolved	0.1	pCi/L	Primary Result	U	UJ	V	*VII	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	908.0	Uranium-235, Particulate	0.054	pCi/L	Primary Result	U	UJ	V	*VII	31547A
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Arsenic	0.00086	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Arsenic, Dissolved	0.00086	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Cobalt	0.00024	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Cobalt, Dissolved	0.00024	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Copper, Dissolved	0.00062	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Nickel	0.0013	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Nickel, Dissolved	0.0016	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Zinc	0.0039	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	6020	Zinc, Dissolved	0.007	mg/L	Primary Result	J	J	V	TR	31380F
RD-59A	2014-02-05 11:18:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380F
RD-59B	2014-02-05 09:10:00	Primary Sample	900.0	Gross Alpha, Dissolved	2.9	pCi/L	Primary Result	J	J	V	TR; L	31547A
RD-59B	2014-02-05 09:10:00	Primary Sample	900.0	Gross Beta, Dissolved	6.3	pCi/L	Primary Result	J	J	V	TR	31547A

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-59B	2014-02-05 09:10:00	Primary Sample	905.0	Strontium-90, Particulate	-0.3	pCi/L	Primary Result	U	UJ	V	E	31547A
RD-59B	2014-02-05 09:10:00	Primary Sample	908.0	Uranium, Dissolved	0.19	pCi/L	Primary Result	J	J	V	TR; *VII	31547A
RD-59B	2014-02-05 09:10:00	Primary Sample	908.0	Uranium, Particulate	-0.033	pCi/L	Primary Result	U	UJ	V	E	31547A
RD-59B	2014-02-05 09:10:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.33	pCi/L	Primary Result		J	V	*VII	31547A
RD-59B	2014-02-05 09:10:00	Primary Sample	908.0	Uranium-235, Dissolved	0.12	pCi/L	Primary Result	U	UJ	V	*VII	31547A
RD-59B	2014-02-05 09:10:00	Primary Sample	6020	Lead, Dissolved	0.00048	mg/L	Primary Result	J	J	V	TR	31380F
RD-59B	2014-02-05 09:10:00	Primary Sample	6020	Tin	0.00082	mg/L	Primary Result	J	J	V	TR	31380F
RD-59B	2014-02-05 09:10:00	Primary Sample	6020	Zinc	0.0073	mg/L	Primary Result	J	J	V	TR	31380F
RD-59B	2014-02-05 09:10:00	Primary Sample	6020	Zinc, Dissolved	0.01	mg/L	Primary Result	J	J	V	TR	31380F
RD-59B	2014-02-05 09:10:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380F
RD-59C	2014-02-05 10:10:00	Primary Sample	900.0	Gross Alpha, Dissolved	0.35	pCi/L	Primary Result	U	UJ	V	L	31547A
RD-59C	2014-02-05 10:10:00	Primary Sample	901.1	Europium-154, Particulate	1.7	pCi/L	Primary Result	UI	R	V	*VIII	31547A
RD-59C	2014-02-05 10:10:00	Primary Sample	905.0	Strontium-90, Particulate	-0.37	pCi/L	Primary Result	U	UJ	V	E	31547A
RD-59C	2014-02-05 10:10:00	Primary Sample	908.0	Uranium, Particulate	0.15	pCi/L	Primary Result	U	UJ	V	E	31547A
RD-59C	2014-02-05 10:10:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.32	pCi/L	Primary Result	J	J	V	TR	31547A
RD-59C	2014-02-05 10:10:00	Primary Sample	6020	Copper, Dissolved	0.00061	mg/L	Primary Result	J	J	V	TR	31380F
RD-59C	2014-02-05 10:10:00	Primary Sample	6020	Lead	0.00081	mg/L	Primary Result	J	J	V	TR	31380F
RD-59C	2014-02-05 10:10:00	Primary Sample	6020	Lead, Dissolved	0.00042	mg/L	Primary Result	J	J	V	TR	31380F
RD-59C	2014-02-05 10:10:00	Primary Sample	6020	Zinc	0.0085	mg/L	Primary Result	J	J	V	TR	31380F
RD-59C	2014-02-05 10:10:00	Primary Sample	6020	Zinc, Dissolved	0.0098	mg/L	Primary Result	J	J	V	TR	31380F
RD-60	2014-02-05 13:07:00	Primary Sample	300.0	Fluoride	0.34	mg/L	Primary Result	JB	J	V	TR	31380F
RD-60	2014-02-05 13:07:00	Primary Sample	900.0	Gross Alpha, Dissolved	18	pCi/L	Primary Result		J	V	L	31547A
RD-60	2014-02-05 13:07:00	Primary Sample	900.0	Gross Beta, Dissolved	14	pCi/L	Primary Result	J	J	V	TR	31547A
RD-60	2014-02-05 13:07:00	Primary Sample	905.0	Strontium-90, Particulate	-0.096	pCi/L	Primary Result	U	UJ	V	E	31547A
RD-60	2014-02-05 13:07:00	Primary Sample	908.0	Uranium, Particulate	-0.018	pCi/L	Primary Result	U	UJ	V	E	31547A
RD-60	2014-02-05 13:07:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380F
RD-60	2014-02-05 13:07:00	Primary Sample	8260B	Chloroform	0.2	µg/L	Primary Result	J	J	V	TR	31380F
RD-60	2014-02-05 13:07:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.36	µg/L	Primary Result	J	J	V	TR	31380F
RD-61	2014-01-21 12:49:00	Primary Sample	300.0	Nitrate-NO3	490	µg/L	Primary Result	J	J	V	TR	31307A
RD-61	2014-01-21 12:49:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	2	pg/L	Primary Result	JB	U	V	B	31312A
RD-61	2014-01-21 12:49:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	UJ	V	S; T	31307A
RD-62	2014-01-21 09:56:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	3.4	pg/L	Primary Result	JB	U	V	B	31312A
RD-62	2014-01-21 09:56:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	V	T	31307A
RD-63	2014-02-13 08:27:00	Primary Sample	300.0	Fluoride	0.43	mg/L	Primary Result	J	J	V	TR	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	901.1	Europium-152, Dissolved	12	pCi/L	Primary Result	UI	R	IV	*VIII	31606J
RD-63	2014-02-13 08:27:00	Primary Sample	908.0	Uranium, Dissolved	4.4	pCi/L	Primary Result		J	V	*VII	31547F
RD-63	2014-02-13 08:27:00	Primary Sample	908.0	Uranium-233/234, Dissolved	4.5	pCi/L	Primary Result		J	V	*VII	31547F
RD-63	2014-02-13 08:27:00	Primary Sample	908.0	Uranium-235, Dissolved	0.2	pCi/L	Primary Result	J	UJ	V	B; *VII	31547F
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Cobalt	0.00012	mg/L	Primary Result	J	J	V	TR	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Cobalt, Dissolved	0.000085	mg/L	Primary Result	J	J	V	TR	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Lead	0.00098	mg/L	Primary Result	J	J	V	TR	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Nickel	0.0017	mg/L	Primary Result	J	J	V	TR	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Nickel, Dissolved	0.00067	mg/L	Primary Result	J	J	V	TR	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Thallium, Dissolved	0.000061	mg/L	Primary Result	JB	U	V	B	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Zinc	0.014	mg/L	Primary Result	J	J	V	TR	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	6020	Zinc, Dissolved	0.01	mg/L	Primary Result	J	J	V	TR	31438B

**TABLE B-3  
SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	1,1-Dichloroethane	0.47	µg/L	Primary Result	J	J	V	S; TR; Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	1,1-Dichloroethene	0.59	µg/L	Primary Result	J	J	V	S; TR; Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	cis-1,2-Dichloroethene	2.9	µg/L	Primary Result		J	V	S; Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B	Trichloroethene	6.1	µg/L	Primary Result		J	V	S; Q	31438B
RD-63	2014-02-13 08:27:00	Primary Sample	8260B SIM	1,4-Dioxane	1.1	µg/L	Primary Result	J	J	V	TR	31438B
RD-64	2014-02-12 09:28:00	Primary Sample	906.0	Tritium	360	pCi/L	Primary Result	J	J	V	TR	31547E
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Arsenic	0.0021	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Arsenic, Dissolved	0.002	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Cobalt	0.00047	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Cobalt, Dissolved	0.00053	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Copper, Dissolved	0.0011	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Lead	0.00034	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Vanadium	0.00084	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	6020	Vanadium, Dissolved	0.00081	mg/L	Primary Result	J	J	IV	TR	31598S
RD-64	2014-02-12 09:28:00	Primary Sample	8260B	1,1-Dichloroethene	0.55	µg/L	Primary Result	J	J	V	TR	31438A
RD-64	2014-02-12 09:28:00	Primary Sample	8260B SIM	1,4-Dioxane	1.8	µg/L	Primary Result	J	J	V	TR	31438A
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Arsenic	0.00046	mg/L	Primary Result	J	J	IV	TR	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Arsenic, Dissolved	0.00051	mg/L	Primary Result	J	J	IV	TR	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Cobalt	0.0003	mg/L	Primary Result	J	J	IV	TR	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Cobalt, Dissolved	0.00013	mg/L	Primary Result	J	J	IV	TR	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Copper	0.00087	mg/L	Primary Result	J	U	IV	F	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Lead	0.00029	mg/L	Primary Result	J	J	IV	TR	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Nickel	0.002	mg/L	Primary Result		U	IV	F	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6020	Nickel, Dissolved	0.002	mg/L	Primary Result		U	IV	F	31598P
RD-65	2014-02-07 09:04:00	Primary Sample	6860	Perchlorate	0.0088	µg/L	Primary Result	U	UJ	V	Q; E; L	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	J	UJ	V	F; S	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8260B	1,1-Dichloroethane	2.9	µg/L	Primary Result		J	V	S	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8260B	1,1-Dichloroethene	15	µg/L	Primary Result		J	V	S; Q	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	UJ	V	B; T; F; S	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8260B	cis-1,2-Dichloroethene	3.7	µg/L	Primary Result		J	V	S	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8260B	trans-1,2-Dichloroethene	1.1	µg/L	Primary Result		J	V	S	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8260B	Trichloroethene	68	µg/L	Primary Result		J	V	S	31419B
RD-65	2014-02-07 09:04:00	Primary Sample	8260B SIM	1,4-Dioxane	0.46	µg/L	Primary Result	J	J	V	TR	31419B
RD-66	2014-01-23 10:31:00	Primary Sample	6860	Perchlorate	0.041	µg/L	Primary Result	J	J	V	TR	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	V	S	31345B

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Acetone	18	µg/L	Primary Result	B	UJ	V	B; T; S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Tetrachloroethene	0.2	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Trichloroethene	0.16	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	V	S	31345B
RD-66	2014-01-23 10:31:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	V	S	31345B
RD-67	2014-01-21 11:10:00	Split Sample	8260B	1,1,1-Trichloroethane	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	5	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	1,1,2-Trichloroethane	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	1,1-Dichloroethane	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	1,1-Dichloroethene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	1,2-Dichloroethane	0.5	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Primary Sample	8260B	Acetone	6.5	µg/L	Primary Result	J	J	V	TR	31307A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Acetone	10	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Benzene	0.5	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Carbon Tetrachloride	0.5	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Chloroform	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	cis-1,2-Dichloroethene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Ethylbenzene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Methyl ethyl ketone	10	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Methyl tert-butyl ether	5	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Methylene chloride	5	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	m-Xylene & p-Xylene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	o-Xylene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	tert-Butyl alcohol	10	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Tetrachloroethene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Toluene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	trans-1,2-Dichloroethene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Trichloroethene	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Trichlorofluoromethane	1	µg/L	Primary Result	U	UJ	V	S	31543A
RD-67	2014-01-21 11:10:00	Split Sample	8260B	Vinyl chloride	0.5	µg/L	Primary Result	U	UJ	V	S	31543A
RD-71	2014-01-23 08:32:00	Primary Sample	8260B	Acetone	12	µg/L	Primary Result	B	U	V	B; T	31345B
RD-72	2014-01-29 11:30:00	Primary Sample	6020	Arsenic	0.00059	mg/L	Primary Result	J	J	V	TR	31361D
RD-72	2014-01-29 11:30:00	Primary Sample	6020	Arsenic, Dissolved	0.00063	mg/L	Primary Result	J	J	V	TR	31361D

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Arsenic	0.0014	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Arsenic	0.0014	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Barium, Dissolved	0.058	mg/L	Primary Result		J	V	A	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Barium, Dissolved	0.059	mg/L	Primary Result		J	V	A	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Cadmium	0.00013	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Cadmium	0.00013	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Cobalt	0.0011	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Cobalt	0.0011	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Cobalt, Dissolved	0.001	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Cobalt, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Lead	0.00084	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Lead	0.00081	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Molybdenum	0.0028	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Molybdenum	0.0028	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Molybdenum, Dissolved	0.003	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Molybdenum, Dissolved	0.0028	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Nickel, Dissolved	0.0023	mg/L	Primary Result		U	V	F	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Thallium	0.00008	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Vanadium	0.00092	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Vanadium	0.00094	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	6020	Vanadium, Dissolved	0.00074	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	6020	Vanadium, Dissolved	0.00054	mg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.15	pg/L	Primary Result	JBQC	U	IV	B	31612J
RD-73	2014-02-03 10:34:00	Field Duplicate	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.39	pg/L	Primary Result	JBQC	U	IV	B	31612J
RD-73	2014-02-03 10:34:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.7	pg/L	Primary Result	JBQC	U	IV	B	31612J
RD-73	2014-02-03 10:34:00	Field Duplicate	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.64	pg/L	Primary Result	JB	U	IV	B	31612J
RD-73	2014-02-03 10:34:00	Field Duplicate	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.12	pg/L	Primary Result	JQC	J	IV	C; TR	31612J
RD-73	2014-02-03 10:34:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.086	pg/L	Primary Result	U	UJ	IV	C	31612J
RD-73	2014-02-03 10:34:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.15	pg/L	Primary Result	JQC	J	IV	TR	31612J
RD-73	2014-02-03 10:34:00	Primary Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.092	pg/L	Primary Result	JQC	J	IV	TR	31612J
RD-73	2014-02-03 10:34:00	Primary Sample	8290	2,3,4,7,8-Pentachlorodibenzofuran	0.13	pg/L	Primary Result	JQC	J	IV	TR	31612J
RD-73	2014-02-03 10:34:00	Primary Sample	8290	Octachlorodibenzofuran	0.68	pg/L	Primary Result	JBQC	U	IV	B	31612J
RD-73	2014-02-03 10:34:00	Field Duplicate	8290	Octachlorodibenzofuran	0.71	pg/L	Primary Result	JBQC	U	IV	B	31612J
RD-73	2014-02-03 10:34:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	3.7	pg/L	Primary Result	JBQC	U	IV	B; F	31612J
RD-73	2014-02-03 10:34:00	Field Duplicate	8290	Octachlorodibenzo-p-dioxin	5.3	pg/L	Primary Result	JB	U	IV	B; F	31612J
RD-73	2014-02-03 10:34:00	Field Duplicate	8015B	Gasoline Range Organics (C6-C12)	1100	µg/L	Primary Result		J	V	S	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	1100	µg/L	Primary Result		J	V	S	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8151A	MCP	57	µg/L	Primary Result	J	J	IV	C; TR; *IX	31598K
RD-73	2014-02-03 10:34:00	Field Duplicate	8151A	MCP	71	µg/L	Primary Result	J	J	IV	C; TR; *IX	31598K
RD-73	2014-02-03 10:34:00	Primary Sample	8260B	1,1-Dichloroethane	16	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	8260B	Benzene	7	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8260B	Benzene	6.7	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	8260B	Chloroform	2.6	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	8260B	Vinyl chloride	7.3	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8260B	Vinyl chloride	7.2	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	8270C SIM	1-Methyl naphthalene	0.099	µg/L	Primary Result	J	J	V	TR	31380C

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-73	2014-02-03 10:34:00	Primary Sample	8270C SIM	1-Methyl naphthalene	0.11	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	0.18	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	8270C SIM	bis(2-Ethylhexyl) phthalate	0.51	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8270C SIM	Fluorene	0.019	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Field Duplicate	8270C SIM	Naphthalene	0.12	µg/L	Primary Result	J	J	V	TR	31380C
RD-73	2014-02-03 10:34:00	Primary Sample	8270C SIM	Naphthalene	0.11	µg/L	Primary Result	J	J	V	TR	31380C
RD-77	2014-01-30 12:21:00	Primary Sample	300.0	Fluoride	0.28	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	300.0	Fluoride	0.28	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Manganese	0.0011	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Manganese	0.0011	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Manganese, Dissolved	0.0011	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Manganese, Dissolved	0.00086	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Molybdenum	0.00074	mg/L	Primary Result	JB	U	V	B	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Molybdenum	0.00067	mg/L	Primary Result	JB	U	V	B	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Molybdenum, Dissolved	0.00071	mg/L	Primary Result	JB	U	V	B	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Molybdenum, Dissolved	0.00084	mg/L	Primary Result	JB	U	V	B	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Nickel	0.0011	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Nickel	0.0011	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Nickel, Dissolved	0.0014	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Nickel, Dissolved	0.0012	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Thallium, Dissolved	0.000062	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Zinc	0.014	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Zinc	0.013	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6020	Zinc, Dissolved	0.016	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6020	Zinc, Dissolved	0.014	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6010B	Potassium	3.4	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6010B	Potassium	3.4	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	6010B	Potassium, Dissolved	3.3	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	6010B	Potassium, Dissolved	3.3	mg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	5.6	µg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	6.1	µg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Primary Sample	8260B	1,1-Dichloroethane	5.1	µg/L	Primary Result	J	J	V	TR	31380A
RD-77	2014-01-30 12:21:00	Field Duplicate	8260B	1,1-Dichloroethane	5.3	µg/L	Primary Result	J	J	V	TR	31380A
RD-78	2014-01-29 10:10:00	Primary Sample	6020	Arsenic	0.00036	mg/L	Primary Result	J	J	V	TR	31361D
RD-78	2014-01-29 10:10:00	Primary Sample	6020	Cobalt	0.00015	mg/L	Primary Result	J	J	V	TR	31361D
RD-78	2014-01-29 10:10:00	Primary Sample	6020	Cobalt, Dissolved	0.00013	mg/L	Primary Result	J	J	V	TR	31361D
RD-78	2014-01-29 10:10:00	Primary Sample	6020	Molybdenum	0.0016	mg/L	Primary Result	J	J	V	TR	31361D
RD-78	2014-01-29 10:10:00	Primary Sample	6020	Molybdenum, Dissolved	0.0015	mg/L	Primary Result	J	J	V	TR	31361D
RD-78	2014-01-29 10:10:00	Primary Sample	8290	Octachlorodibenzofuran	2.1	pg/L	Primary Result	J	J	IV	TR	31612G
RD-78	2014-01-29 10:10:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	3.7	pg/L	Primary Result	JBQC	U	IV	B	31612G
RD-78	2014-01-29 10:10:00	Primary Sample	6010B	Iron, Dissolved	0.059	mg/L	Primary Result	J	J	V	TR	31361D
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Arsenic	0.00063	mg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Arsenic, Dissolved	0.00051	mg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Barium, Dissolved	0.044	mg/L	Primary Result		J	V	A	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Lead, Dissolved	0.00093	mg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Molybdenum	0.00064	mg/L	Primary Result	J	J	V	TR	31380C



**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Molybdenum, Dissolved	0.00055	mg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Selenium	0.0024	mg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	6020	Selenium, Dissolved	0.0024	mg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.58	pg/L	Primary Result	JBQC	U	IV	B	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1.6	pg/L	Primary Result	JB	U	IV	B	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8290	1,2,3,4,7,8-Hexachlorodibenzofuran	0.25	pg/L	Primary Result	JQC	J	IV	C; TR	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8290	1,2,3,6,7,8-Hexachlorodibenzofuran	0.15	pg/L	Primary Result	JQC	J	IV	TR	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8290	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.12	pg/L	Primary Result	JQC	J	IV	TR	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8290	2,3,4,6,7,8-Hexachlorodibenzofuran	0.085	pg/L	Primary Result	JQC	J	IV	TR	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8290	Octachlorodibenzofuran	0.86	pg/L	Primary Result	JBQC	U	IV	B	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	9.1	pg/L	Primary Result	JB	U	IV	B	31612J
RD-84	2014-02-03 13:29:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	200	µg/L	Primary Result		J	V	S	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	8260B	1,1-Dichloroethane	1.7	µg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	8260B	Chloroform	0.33	µg/L	Primary Result	J	J	V	TR	31380C
RD-84	2014-02-03 13:29:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.53	µg/L	Primary Result	J	J	V	TR	31380C
RD-85	2014-02-12 12:32:00	Primary Sample	900.0	Gross Alpha, Dissolved	6	pCi/L	Primary Result	J	J	V	TR	31547E
RD-85	2014-02-12 12:32:00	Primary Sample	900.0	Gross alpha, Particulate	0.5	pCi/L	Primary Result	J	J	V	TR	31547E
RD-85	2014-02-12 12:32:00	Primary Sample	900.0	Gross Beta, Dissolved	4.8	pCi/L	Primary Result	U	UJ	V	L	31547E
RD-85	2014-02-12 12:32:00	Primary Sample	900.0	Gross beta, Particulate	1.4	pCi/L	Primary Result	U	UJ	V	L	31547E
RD-85	2014-02-12 12:32:00	Primary Sample	901.1	Europium-154, Dissolved	6.4	pCi/L	Primary Result	UI	R	IV	*VIII	31606I
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Arsenic	0.00042	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Cadmium	0.00054	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Cadmium, Dissolved	0.00018	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Cobalt	0.000059	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Cobalt, Dissolved	0.00021	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Copper	0.00067	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Thallium	0.000075	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Thallium, Dissolved	0.000078	mg/L	Primary Result	JB	U	V	B	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Vanadium	0.00086	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Zinc	0.0048	mg/L	Primary Result	JB	U	V	B	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	6020	Zinc, Dissolved	0.004	mg/L	Primary Result	J	J	V	TR	31438A
RD-85	2014-02-12 12:32:00	Primary Sample	8260B	Acetone	5	µg/L	Primary Result	J	J	V	TR	31438A
RD-86	2014-02-07 11:54:00	Primary Sample	300.0	Fluoride	0.38	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	900.0	Gross Alpha, Dissolved	1.1	pCi/L	Primary Result	U	UJ	V	L	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	900.0	Gross alpha, Particulate	8.3	pCi/L	Primary Result	J	J	V	L	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	905.0	Strontium-90, Dissolved	0.68	pCi/L	Primary Result	U	R	V	*IX	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	908.0	Uranium, Dissolved	0.71	pCi/L	Primary Result		J	V	*VII	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	908.0	Uranium, Particulate	0.23	pCi/L	Primary Result	J	J	V	TR	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	908.0	Uranium-233/234, Dissolved	0.53	pCi/L	Primary Result		UJ	V	B; *VII	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	908.0	Uranium-233/234, Particulate	0.31	pCi/L	Primary Result	J	J	V	TR	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	908.0	Uranium-235, Dissolved	0.27	pCi/L	Primary Result	J	J	V	TR; *VII	31547C
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Arsenic	0.0013	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Arsenic, Dissolved	0.00059	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Cobalt	0.00011	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Cobalt, Dissolved	0.000099	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Copper, Dissolved	0.00068	mg/L	Primary Result	J	J	V	TR	31419B

**TABLE B-3  
SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Lead	0.00029	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Selenium	0.0029	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Selenium, Dissolved	0.0029	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Vanadium	0.0016	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Vanadium, Dissolved	0.00085	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Zinc	0.0055	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	6020	Zinc, Dissolved	0.0077	mg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.38	µg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	8260B	Trichloroethene	0.31	µg/L	Primary Result	J	J	V	TR	31419B
RD-86	2014-02-07 11:54:00	Primary Sample	EiChrom Am-01	Curium-243/244, Particulate	0.036	pCi/L	Primary Result	U	UJ	IV	*VII	31606F
RD-87	2014-02-12 08:46:00	Primary Sample	6020	Cobalt	0.000073	mg/L	Primary Result	J	J	IV	TR	31598S
RD-87	2014-02-12 08:46:00	Primary Sample	6020	Nickel	0.001	mg/L	Primary Result	J	U	IV	F	31598S
RD-87	2014-02-12 08:46:00	Primary Sample	6020	Nickel, Dissolved	0.0011	mg/L	Primary Result	J	U	IV	F	31598S
RD-87	2014-02-12 08:46:00	Primary Sample	6020	Zinc	0.0028	mg/L	Primary Result	JB	U	IV	B; F	31598S
RD-87	2014-02-12 08:46:00	Primary Sample	6020	Zinc, Dissolved	0.0031	mg/L	Primary Result	J	U	IV	F	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Arsenic	0.00093	mg/L	Primary Result	J	J	IV	TR	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Arsenic, Dissolved	0.00039	mg/L	Primary Result	J	J	IV	TR	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Cobalt	0.00031	mg/L	Primary Result	J	J	IV	TR	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Lead	0.00031	mg/L	Primary Result	J	J	IV	TR	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Nickel	0.00037	mg/L	Primary Result	J	U	IV	F	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Nickel, Dissolved	0.00056	mg/L	Primary Result	J	U	IV	F	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Vanadium	0.0011	mg/L	Primary Result	J	J	IV	TR	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Vanadium, Dissolved	0.0006	mg/L	Primary Result	J	J	IV	TR	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Zinc	0.0051	mg/L	Primary Result	JB	U	IV	B; F	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	6020	Zinc, Dissolved	0.0044	mg/L	Primary Result	J	U	IV	F	31598S
RD-90	2014-02-12 10:22:00	Primary Sample	8260B	1,1-Dichloroethane	0.83	µg/L	Primary Result	J	J	V	TR	31438A
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Antimony, Dissolved	0.00059	mg/L	Primary Result	J	U	IV	B	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Arsenic	0.00069	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Arsenic, Dissolved	0.00042	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Beryllium, Dissolved	0.00017	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Chromium	0.0055	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Cobalt, Dissolved	0.00047	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Selenium	0.00087	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Selenium, Dissolved	0.0008	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Thallium	0.000064	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Thallium, Dissolved	0.00021	mg/L	Primary Result	JB	U	IV	B	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Vanadium	0.0015	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	6020	Vanadium, Dissolved	0.00081	mg/L	Primary Result	J	J	IV	TR	31598T
RD-91	2014-02-13 10:07:00	Primary Sample	8015B	Diesel Range Organics (C8-C30)	0.097	mg/L	Primary Result	U	UJ	V	L	31438B
RD-91	2014-02-13 10:07:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	14	µg/L	Primary Result	J	J	V	S; TR	31438B
RD-91	2014-02-13 10:07:00	Primary Sample	8260B	Chloroform	0.22	µg/L	Primary Result	J	J	V	TR	31438B
RD-91	2014-02-13 10:07:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.25	µg/L	Primary Result	J	J	V	TR	31438B
RD-91	2014-02-13 10:07:00	Primary Sample	8260B	Trichloroethene	200	µg/L	Primary Result		J	V	S	31438B
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Arsenic	0.00082	mg/L	Primary Result	J	J	IV	TR	31598O
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Arsenic, Dissolved	0.00067	mg/L	Primary Result	J	J	IV	TR	31598O

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Chromium	0.002	mg/L	Primary Result	J	J	IV	TR	315980
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Cobalt	0.00052	mg/L	Primary Result	J	J	IV	TR	315980
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Cobalt, Dissolved	0.00024	mg/L	Primary Result	J	J	IV	TR	315980
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Lead	0.0018	mg/L	Primary Result	J	J	IV	TR	315980
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Lead, Dissolved	0.00025	mg/L	Primary Result	J	J	IV	TR	315980
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Nickel	0.0014	mg/L	Primary Result	J	J	IV	TR	315980
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Nickel, Dissolved	0.001	mg/L	Primary Result	J	J	IV	TR	315980
RD-92	2014-02-06 10:20:00	Primary Sample	6020	Vanadium	0.00084	mg/L	Primary Result	J	J	IV	TR	315980
RD-93	2014-02-11 12:51:00	Primary Sample	300.0	Nitrate-NO3	44000	µg/L	Primary Result		J	IV	H	31419E
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Antimony	0.0005	mg/L	Primary Result	J	U	IV	B; F	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Antimony, Dissolved	0.0006	mg/L	Primary Result	J	U	IV	B; F	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Cadmium	0.00019	mg/L	Primary Result	J	J	IV	TR	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Cobalt	0.000055	mg/L	Primary Result	J	J	IV	TR	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Cobalt, Dissolved	0.00007	mg/L	Primary Result	J	J	IV	TR	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Copper	0.00079	mg/L	Primary Result	J	U	IV	F	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Nickel	0.0013	mg/L	Primary Result	J	U	IV	F	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Nickel, Dissolved	0.0013	mg/L	Primary Result	J	U	IV	F	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Selenium	0.00093	mg/L	Primary Result	J	J	IV	TR	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Selenium, Dissolved	0.00077	mg/L	Primary Result	J	J	IV	TR	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Thallium	0.00013	mg/L	Primary Result	J	U	IV	B	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Thallium, Dissolved	0.00014	mg/L	Primary Result	JB	U	IV	B	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Zinc	0.0056	mg/L	Primary Result	J	U	IV	F	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	6020	Zinc, Dissolved	0.0056	mg/L	Primary Result	J	U	IV	F	31598R
RD-93	2014-02-11 12:51:00	Primary Sample	8260B	1,1-Dichloroethane	0.59	µg/L	Primary Result	J	J	V	TR	31419E
RD-93	2014-02-11 12:51:00	Primary Sample	8260B	1,1-Dichloroethene	0.76	µg/L	Primary Result	J	J	V	TR	31419E
RD-93	2014-02-11 12:51:00	Primary Sample	8260B	Trichloroethene	0.16	µg/L	Primary Result	J	J	V	TR	31419E
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Cobalt	0.00091	mg/L	Primary Result	J	J	IV	TR	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Cobalt, Dissolved	0.00044	mg/L	Primary Result	J	J	IV	TR	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Copper	0.00087	mg/L	Primary Result	J	U	IV	F	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Copper, Dissolved	0.00058	mg/L	Primary Result	J	U	IV	F	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Lead	0.00034	mg/L	Primary Result	J	J	IV	TR	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Nickel	0.0014	mg/L	Primary Result	J	U	IV	F	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Nickel, Dissolved	0.0013	mg/L	Primary Result	J	U	IV	F	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Vanadium	0.00077	mg/L	Primary Result	J	J	IV	TR	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Zinc	0.0036	mg/L	Primary Result	JB	U	IV	B; F	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	6020	Zinc, Dissolved	0.0044	mg/L	Primary Result	J	U	IV	F	31598S
RD-94	2014-02-12 12:07:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	J	U	IV	F; T	31612O
RD-94	2014-02-12 12:07:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	IV	C	31612O
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Cadmium	0.00021	mg/L	Primary Result	J	J	IV	TR	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Cadmium, Dissolved	0.00012	mg/L	Primary Result	J	J	IV	TR	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Cobalt	0.000071	mg/L	Primary Result	J	J	IV	TR	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Cobalt, Dissolved	0.000071	mg/L	Primary Result	J	J	IV	TR	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Copper, Dissolved	0.00066	mg/L	Primary Result	J	U	IV	F	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Selenium	0.0031	mg/L	Primary Result	J	J	IV	TR	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Selenium, Dissolved	0.0032	mg/L	Primary Result	J	J	IV	TR	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Vanadium	0.0012	mg/L	Primary Result	J	J	IV	TR	31598R

**TABLE B-3  
SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Vanadium, Dissolved	0.00053	mg/L	Primary Result	J	J	IV	TR	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Zinc	0.0034	mg/L	Primary Result	J	U	IV	F	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	6020	Zinc, Dissolved	0.014	mg/L	Primary Result	JB	U	IV	B	31598R
RD-95	2014-02-11 13:10:00	Primary Sample	8260B	1,1-Dichloroethane	0.38	µg/L	Primary Result	J	J	V	TR	31419E
RD-96	2014-02-13 08:17:00	Primary Sample	908.0	Uranium, Dissolved	10	pCi/L	Primary Result		J	V	*VII	31547F
RD-96	2014-02-13 08:17:00	Primary Sample	908.0	Uranium-233/234, Dissolved	8.8	pCi/L	Primary Result		J	V	*VII	31547F
RD-96	2014-02-13 08:17:00	Primary Sample	908.0	Uranium-235, Dissolved	0.72	pCi/L	Primary Result		J	V	*VII	31547F
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Arsenic	0.00035	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Arsenic, Dissolved	0.00034	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Nickel	0.0014	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Nickel, Dissolved	0.00081	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Selenium	0.0018	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Selenium, Dissolved	0.0013	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Vanadium	0.0013	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Vanadium, Dissolved	0.0014	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Zinc	0.003	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	6020	Zinc, Dissolved	0.0059	mg/L	Primary Result	J	J	IV	TR	31598T
RD-96	2014-02-13 08:17:00	Primary Sample	8015B	Diesel Range Organics (C8-C30)	0.1	mg/L	Primary Result	U	UJ	V	L	31438B
RD-96	2014-02-13 08:17:00	Primary Sample	8015B	Gasoline Range Organics (C6-C12)	100	µg/L	Primary Result	J	U	V	T	31438B
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Antimony	0.00085	mg/L	Primary Result	J	U	IV	B; F	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Antimony, Dissolved	0.00075	mg/L	Primary Result	J	U	IV	B; F	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Arsenic	0.0012	mg/L	Primary Result	J	J	IV	TR	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Beryllium	0.00008	mg/L	Primary Result	J	J	IV	TR	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Chromium	0.00071	mg/L	Primary Result	J	U	IV	F	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Cobalt, Dissolved	0.00048	mg/L	Primary Result	J	J	IV	TR	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Lead	0.00083	mg/L	Primary Result	J	J	IV	TR	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Nickel	0.0015	mg/L	Primary Result	J	U	IV	F	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Nickel, Dissolved	0.00084	mg/L	Primary Result	J	U	IV	F	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Silver	0.00064	mg/L	Primary Result	J	J	IV	TR	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Vanadium	0.0019	mg/L	Primary Result	J	J	IV	TR	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Zinc	0.0059	mg/L	Primary Result	JB	U	IV	B; F	31598S
RD-97	2014-02-12 14:06:00	Primary Sample	6020	Zinc, Dissolved	0.0031	mg/L	Primary Result	J	U	IV	F	31598S
RD-99	2014-01-22 10:32:00	Primary Sample	300.0	Fluoride	0.2	mg/L	Primary Result	J	J	V	TR	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	6020	Antimony, Dissolved	0.00078	mg/L	Primary Result	J	U	V	F	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	6020	Lead	0.00049	mg/L	Primary Result	J	J	V	TR	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	6020	Zinc	0.01	mg/L	Primary Result	J	U	V	F	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	6020	Zinc, Dissolved	0.0062	mg/L	Primary Result	JB	U	V	B; F	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	1.5	pg/L	Primary Result	JB	U	V	B; F	31314A
RD-99	2014-01-22 10:32:00	Primary Sample	9012	Cyanides	0.0021	mg/L	Primary Result	J	J	V	TR	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	8270C SIM	bis(2-Ethylhexyl) phthalate	10	µg/L	Primary Result	JB	U	V	B	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	8270C SIM	Diethyl phthalate	10	µg/L	Primary Result	JB	U	V	B	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	8270C SIM	Dimethyl phthalate	0.04	µg/L	Primary Result	J	J	V	TR	31345A
RD-99	2014-01-22 10:32:00	Primary Sample	8270C SIM	Di-n-butyl phthalate	10	µg/L	Primary Result	JB	U	V	B	31345A
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Arsenic	0.00067	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Arsenic, Dissolved	0.00064	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Beryllium	0.0001	mg/L	Primary Result	J	U	IV	F	31419C

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Chromium	0.00078	mg/L	Primary Result	J	U	IV	F	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Copper	0.0012	mg/L	Primary Result	J	U	IV	F	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Copper, Dissolved	0.0008	mg/L	Primary Result	J	U	IV	F	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Lead	0.00028	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Molybdenum	0.0017	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Molybdenum, Dissolved	0.0015	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Nickel	0.00093	mg/L	Primary Result	J	U	IV	F	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Nickel, Dissolved	0.00073	mg/L	Primary Result	J	U	IV	F	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Selenium	0.0021	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Selenium, Dissolved	0.0021	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Thallium	0.000062	mg/L	Primary Result	JB	U	IV	B; F	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Vanadium	0.0026	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Vanadium, Dissolved	0.0014	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	6020	Zinc, Dissolved	0.016	mg/L	Primary Result	J	J	IV	TR	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	8270C SIM	Diethyl phthalate	9.5	µg/L	Primary Result	JB	U	IV	B	31419C
RS-37	2014-02-10 08:46:00	Primary Sample	8270C SIM	Di-n-butyl phthalate	9.5	µg/L	Primary Result	JB	U	IV	B	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Antimony	0.00048	mg/L	Primary Result	J	U	IV	B; F	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Antimony, Dissolved	0.0004	mg/L	Primary Result	J	U	IV	B; F	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Arsenic, Dissolved	0.0034	mg/L	Primary Result	J	J	IV	TR	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Chromium	0.0023	mg/L	Primary Result		U	IV	F	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Cobalt	0.00074	mg/L	Primary Result	J	J	IV	TR	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Cobalt, Dissolved	0.00027	mg/L	Primary Result	J	J	IV	TR	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Copper	0.0015	mg/L	Primary Result	J	U	IV	F	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Lead	0.00066	mg/L	Primary Result	J	J	IV	TR	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Molybdenum	0.005	mg/L	Primary Result	J	J	IV	TR	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Molybdenum, Dissolved	0.0041	mg/L	Primary Result	J	J	IV	TR	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Tin	0.00077	mg/L	Primary Result	U	UJ	IV	Q	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Vanadium, Dissolved	0.0027	mg/L	Primary Result	J	J	IV	TR	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Zinc	0.011	mg/L	Primary Result	J	U	IV	F	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	6020	Zinc, Dissolved	0.0063	mg/L	Primary Result	J	U	IV	F	31419C
RS-38	2014-02-10 09:43:00	Primary Sample	8290	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.84	pg/L	Primary Result	JBQC	U	IV	B	31419D
RS-38	2014-02-10 09:43:00	Primary Sample	8290	Octachlorodibenzofuran	2.8	pg/L	Primary Result	JBQC	U	IV	B	31419D
RS-38	2014-02-10 09:43:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	35	pg/L	Primary Result	JB	U	IV	B; F	31419D
RS-38	2014-02-10 09:43:00	Primary Sample	6010B	Aluminum	1.1	mg/L	Primary Result		J	V	Q	31419C
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Antimony, Dissolved	0.00089	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Cobalt	0.00038	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Cobalt, Dissolved	0.00041	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Lead	0.00034	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Nickel	0.00034	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Nickel, Dissolved	0.00066	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Thallium, Dissolved	0.00012	mg/L	Primary Result	J	U	IV	B	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Vanadium	0.00059	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Zinc	0.018	mg/L	Primary Result	JB	J	IV	TR	31453B
SP-900A	2014-02-19 11:33:00	Primary Sample	6020	Zinc, Dissolved	0.013	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900B	2014-02-19 10:05:00	Primary Sample	6020	Nickel	0.0019	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900B	2014-02-19 10:05:00	Primary Sample	6020	Nickel, Dissolved	0.0016	mg/L	Primary Result	J	J	IV	TR	31453B

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
SP-900B	2014-02-19 10:05:00	Primary Sample	6020	Thallium	0.000066	mg/L	Primary Result	J	U	IV	B	31453B
SP-900B	2014-02-19 10:05:00	Primary Sample	6020	Zinc	0.0023	mg/L	Primary Result	JB	U	IV	B	31453B
SP-900B	2014-02-19 10:05:00	Primary Sample	6020	Zinc, Dissolved	0.0023	mg/L	Primary Result	J	J	IV	TR	31453B
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Arsenic	0.00081	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Arsenic, Dissolved	0.00042	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Beryllium	0.00013	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Cadmium	0.0002	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Chromium	0.0094	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Copper	0.0014	mg/L	Primary Result	JB	U	IV	B	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Lead	0.00094	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Silver	0.00022	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Thallium	0.000064	mg/L	Primary Result	J	U	IV	B	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Thallium, Dissolved	0.000081	mg/L	Primary Result	J	U	IV	B	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Vanadium	0.0034	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	6020	Zinc, Dissolved	0.013	mg/L	Primary Result	J	J	IV	TR	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	IV	C	31453C
SP-900C	2014-02-20 08:07:00	Primary Sample	8260B	Toluene	0.25	µg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Antimony	0.00055	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Arsenic	0.00085	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Beryllium	0.00019	mg/L	Primary Result	J	U	IV	B	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Cadmium	0.00015	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Chromium	0.0052	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Lead, Dissolved	0.00029	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Silver	0.0002	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Thallium	0.00015	mg/L	Primary Result	J	U	IV	B	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Thallium, Dissolved	0.000058	mg/L	Primary Result	J	U	IV	B	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Tin	0.001	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Vanadium	0.007	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	6020	Zinc, Dissolved	0.0042	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	IV	C	31453C
SP-T02A	2014-02-20 11:24:00	Primary Sample	8260B	Toluene	0.75	µg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	6020	Arsenic	0.00047	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	6020	Arsenic, Dissolved	0.00043	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	6020	Chromium	0.00065	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	6020	Lead	0.00021	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	6020	Vanadium	0.00072	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	6020	Zinc	0.0048	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	6020	Zinc, Dissolved	0.0035	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	IV	C	31453C
SP-T02B	2014-02-20 09:40:00	Primary Sample	8260B	Toluene	0.35	µg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Arsenic	0.00097	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Arsenic, Dissolved	0.00067	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Cadmium	0.00015	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Chromium	0.00068	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Copper	0.0013	mg/L	Primary Result	JB	U	IV	B	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Lead	0.00038	mg/L	Primary Result	J	J	IV	TR	31453C

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Nickel	0.0009	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Nickel, Dissolved	0.00052	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	6020	Zinc, Dissolved	0.012	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	IV	C	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	IV	C	31453C
SP-T02C	2014-02-20 10:17:00	Primary Sample	8260B	Toluene	0.44	µg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Arsenic	0.0011	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Arsenic, Dissolved	0.00053	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Beryllium	0.00011	mg/L	Primary Result	J	U	IV	B	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Chromium	0.0028	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Copper	0.0011	mg/L	Primary Result	JB	U	IV	B	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Nickel, Dissolved	0.00052	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Silver	0.00012	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Vanadium	0.0033	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	6020	Zinc, Dissolved	0.0052	mg/L	Primary Result	J	J	IV	TR	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	1,1,1-Trichloroethane	0.16	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	0.42	µg/L	Primary Result	U	UJ	IV	C; S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	1,1,2-Trichloroethane	0.27	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	1,1-Dichloroethane	0.22	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	1,1-Dichloroethene	0.23	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	1,2-Dichloroethane	0.13	µg/L	Primary Result	U	UJ	IV	C; S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Acetone	1.9	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Benzene	0.16	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Carbon Tetrachloride	0.19	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Chloroform	0.16	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Ethylbenzene	0.16	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Methyl ethyl ketone	2	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Methylene chloride	0.32	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	o-Xylene	0.19	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Tetrachloroethene	0.2	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	trans-1,2-Dichloroethene	0.15	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Trichloroethene	0.16	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	IV	S	31453C
SP-T02D	2014-02-20 11:01:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	IV	S	31453C
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Arsenic	0.00098	mg/L	Primary Result	J	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Arsenic, Dissolved	0.00038	mg/L	Primary Result	J	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Cadmium	0.00049	mg/L	Primary Result	J	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Molybdenum	0.0011	mg/L	Primary Result	JB	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Molybdenum, Dissolved	0.00073	mg/L	Primary Result	J	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Thallium	0.00048	mg/L	Primary Result	J	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Thallium, Dissolved	0.000065	mg/L	Primary Result	J	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	6020	Vanadium	0.0015	mg/L	Primary Result	J	J	V	TR	31361A
WS-04A	2014-01-24 11:18:00	Primary Sample	8290	Octachlorodibenzo-p-dioxin	0.82	pg/L	Primary Result	JBQC	U	V	B	31345C

**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
WS-05	2014-01-24 10:25:00	Primary Sample	6020	Arsenic, Dissolved	0.00037	mg/L	Primary Result	J	J	V	TR	31361A
WS-05	2014-01-24 10:25:00	Primary Sample	6020	Molybdenum, Dissolved	0.00078	mg/L	Primary Result	J	J	V	TR	31361A
WS-05	2014-01-24 10:25:00	Primary Sample	6010B	Boron, Dissolved	0.038	mg/L	Primary Result	J	J	V	TR	31361A
WS-05	2014-01-24 10:25:00	Primary Sample	6010B	Iron, Dissolved	0.041	mg/L	Primary Result	J	J	V	TR	31361A
WS-07	2014-02-06 08:40:00	Primary Sample	6020	Cobalt	0.0002	mg/L	Primary Result	J	J	IV	TR	31598O
WS-07	2014-02-06 08:40:00	Primary Sample	6020	Nickel, Dissolved	0.00059	mg/L	Primary Result	J	U	IV	F	31598O
WS-07	2014-02-06 08:40:00	Primary Sample	6020	Zinc, Dissolved	0.0054	mg/L	Primary Result	J	U	IV	F	31598O
WS-07	2014-02-06 08:40:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	IV	B; T; F	31598O
WS-07	2014-02-06 08:40:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.16	µg/L	Primary Result	J	J	IV	TR	31598O
WS-07	2014-02-06 08:40:00	Primary Sample	8260B	m-Xylene & p-Xylene	0.34	µg/L	Primary Result	U	UJ	IV	C	31598O
WS-07	2014-02-06 08:40:00	Primary Sample	8260B	Trichlorofluoromethane	0.29	µg/L	Primary Result	U	UJ	IV	C	31598O
WS-07	2014-02-06 08:40:00	Primary Sample	8260B	Vinyl chloride	0.1	µg/L	Primary Result	U	UJ	IV	C	31598O
WS-11	2014-01-31 09:14:00	Primary Sample	6020	Cobalt	0.00015	mg/L	Primary Result	J	J	IV	TR	31598J
WS-11	2014-01-31 09:14:00	Primary Sample	6020	Cobalt, Dissolved	0.00014	mg/L	Primary Result	J	J	IV	TR	31598J
WS-11	2014-01-31 09:14:00	Primary Sample	6020	Lead	0.00021	mg/L	Primary Result	J	J	IV	TR	31598J
WS-11	2014-01-31 09:14:00	Primary Sample	6020	Molybdenum	0.0051	mg/L	Primary Result	J	J	IV	TR	31598J
WS-11	2014-01-31 09:14:00	Primary Sample	6020	Molybdenum, Dissolved	0.005	mg/L	Primary Result	JB	J	IV	TR	31598J
WS-11	2014-01-31 09:14:00	Primary Sample	6020	Nickel	0.0015	mg/L	Primary Result	J	J	IV	TR	31598J
WS-11	2014-01-31 09:14:00	Primary Sample	6020	Nickel, Dissolved	0.0014	mg/L	Primary Result	J	J	IV	TR	31598J
WS-11	2014-01-31 09:14:00	Primary Sample	8260B	Acetone	10	µg/L	Primary Result	JB	U	V	B; T	31380B
WS-11	2014-01-31 09:14:00	Primary Sample	8260B	cis-1,2-Dichloroethene	0.68	µg/L	Primary Result	J	J	V	TR	31380B
WS-11	2014-01-31 09:14:00	Primary Sample	8260B	Toluene	0.17	µg/L	Primary Result	J	J	V	TR	31380B
WS-14	2014-01-29 08:50:00	Primary Sample	6020	Arsenic	0.0016	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6020	Arsenic, Dissolved	0.0016	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6020	Chromium	0.0018	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6020	Copper	0.0017	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6020	Copper, Dissolved	0.00062	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6020	Molybdenum	0.0034	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6020	Molybdenum, Dissolved	0.0033	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6010B	Boron	0.027	mg/L	Primary Result	J	J	V	TR	31361D
WS-14	2014-01-29 08:50:00	Primary Sample	6010B	Boron, Dissolved	0.031	mg/L	Primary Result	JB	U	V	B	31361D



**TABLE B-3**  
**SUMMARY OF FIRST QUARTER 2014 DATA QUALIFICATION**  
**SANTA SUSANA FIELD LABORATORY**  
**VENTURA COUNTY, CALIFORNIA**

Well ID	Collection Date	Sample Type	Analytical Method	Parameter	Sample Result	Units	Result Type	Lab Qualifier Code	Validator Qualifier Code	Validation Level	Reason Code	Validation Report
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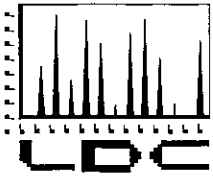
REASON CODES:

- A - ICP Serial Dilution %D were not within control limits.  
 B - Presumed contamination as indicated by the method blank results.  
 C - Calibration %RSD or %D was noncompliant.  
 D - The analysis with this flag should not be used; a more technically sound analysis is available.  
 E - Lab duplicates showed poor agreement.  
 F - Presumed contamination as indicated by the field blank or equipment rinse blank results.  
 H - Holding time was exceeded.  
 L - LCS and/or LCSD %R was not within control limits.  
 Q - MS and/or MSD recovery was poor or RPD was high.  
 R - Calibration RRF was < 0.05.  
 S - Surrogate recovery was outside QC limits.  
 T - Presumed contamination as indicated by the trip blank results.  
 TR - Trace value; result was reported below the RL.  
 \*I - Sample received outside the recommended temperature range.  
 \*IX - Sample result not verified.  
 \*VII - Tracer recoverY outside control limits.  
 \*VIII - Isotope was reported from "non-identified nuclides" report.  
 \*XVI - Split sample pair showed poor agreement.

NOTES AND ABBREVIATIONS

- µg/L - micrograms per liter  
 mg/L - milligrams per liter  
 pg/L - picograms per liter  
 pCi/L - picocuries per liter
- J - Result is estimated  
 R - Result is rejected  
 U - Not detected above the minimum detectable activity (MDA), method detection limit (MDL), or reporting limit (RL)  
 UJ - The result is not detected; however, the RL/MDL is estimated.
- %R - percent recovery  
 B - Compound was found in the blank and in the sample.  
 HTV - holding time violation  
 LCS/LCSD - laboratory control spike/laboratory control spike duplicate  
 MS/MSD - matrix spike/matrix spike duplicate  
 Q - estimated maximum possible concentration  
 QC - quality control  
 RL - reporting limit  
 RPD - relative percent difference  
 RRF - relative response factor  
 SIM - selective ion monitoring  
 UI - unidentified nuclide

**ATTACHMENT B-1**  
**DATA VALIDATION REPORTS**



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

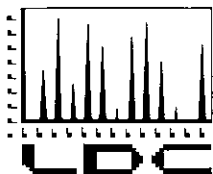
Enclosed is the final validation report for the fractions listed below. This SDG was received on February 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31307:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51368-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, Semivolatiles, N-Nitrosodimethylamine, Metals, Total Petroleum Hydrocarbons as Extractables, Formaldehyde, Perchlorate, Hydrazines, Wet Chemistry

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007



Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', with a long, sweeping underline that extends to the right.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 21, 2014  
**LDC Report Date:** February 25, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
TB\_RD-06\_012114  
RD-67\_012114\_01  
TB\_RD-67\_012114  
RD-48B\_012114\_01  
TB\_RD-48B\_012114  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36  
RD-61\_012114\_01  
TB\_RD-61\_012114

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-209656/7	1/23/14	Methylene chloride	0.601 ug/L	All samples in SDG 280-51368-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Samples TB\_RD-06\_012114, TB\_RD-67\_012114, TB\_RD-48B\_012114 and TB\_RD-61\_012114 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-06_012114	1/21/14	Acetone	8.2 ug/L	RD-06_012114_01
TB_RD-48B_012114	1/21/14	Acetone	7.7 ug/L	RD-48B_012114_01 RD-48C_012114_01 RD-62_012114_01



Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-61_012114	1/21/14	Acetone	13 ug/L	RD-44_012114_01 RD-44_012114_36 RD-61_012114_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-06_012114_01	Acetone	3.9 ug/L	10U ug/L
RD-48B_012114_01	Acetone	4.3 ug/L	10U ug/L
RD-48C_012114_01	Acetone	4.0 ug/L	10U ug/L
RD-62_012114_01	Acetone	5.7 ug/L	10U ug/L
RD-61_012114_01	Acetone	3.3 ug/L	10U ug/L
RD-44_012114_01	Acetone	3.7 ug/L	10U ug/L
RD-44_012114_36	Acetone	5.2 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TB_RD-48B_012114	Bromofluorobenzene	117 (86-115)	All TCL compounds	J (all detects)	P
RD-61_012114_01	Bromofluorobenzene	118 (86-115)	All TCL compounds	J (all detects)	P
TB_RD-61_012114	Bromofluorobenzene	118 (86-115)	All TCL compounds	J (all detects)	P
MB 280-209656/7	Bromofluorobenzene	118 (86-115)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flags	A or P
	RD-44_012114_01	RD-44_012114_36			
Acetone	3.7	5.2	34 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	TB_RD-48B_012114 RD-61_012114_01 TB_RD-61_012114	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51368-1	RD-06_012114_01 TB_RD-06_012114 RD-67_012114_01 TB_RD-67_012114 RD-48B_012114_01 TB_RD-48B_012114 RD-48C_012114_01 RD-62_012114_01 RD-44_012114_01 RD-44_012114_36 RD-61_012114_01 TB_RD-61_012114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51368-1	RD-06_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-48B_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-48C_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-62_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-61_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-44_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-44_012114_36	Acetone	10U ug/L	A	T

LDC #: 31307A1a  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: Jh  
 2nd Reviewer: 9

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	client
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D=9+10
XVII.	Field blanks	SW	TB=2,4,6,12

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-06_012114_01	11	RD-61_012114_01	21	31
2	TB_RD-06_012114	12	TB_RD-61_012114	22	32
3	RD-67_012114_01	13		23	33
4	TB_RD-67_012114	14		24	34
5	RD-48B_012114_01	15		25	35
6	TB_RD-48B_012114	16		26	36
7	RD-48C_012114_01	17		27	37
8	RD-62_012114_01	18		28	38
9	RD-44_012114_01	19		29	MB280-209656/7 39
10	RD-44_012114_36	20		30	40

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**

**Blanks**

Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Was a method blank associated with every sample in this SDG?

N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 01/23/14

Conc. units: µg/L Associated Samples: All

Compound	Blank ID	Sample Identification								
	MB 280-209656/7	10x								
E	0.601	3.005								

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

N N/A Were field blanks identified in this SDG?

N N/A Were target compounds detected in the field blanks?

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 1 Qual U (T)

Compound	Blank ID <u>2</u>		Sample Identification						
Sampling Date: 01/21/14	TB_RD-06_012114	10x	1						
Acetone	8.2	82	3.9/10U						

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 5, 7-8 Qual U (T)

Compound	Blank ID <u>6</u>		Sample Identification						
Sampling Date: 01/21/14	TB_RD-48B_012114	10x	5	T	8				
Acetone	7.7	77	4.3/10U	4.0/10U	5.7/10U				

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 9-11 Qual U (T)

Compound	Blank ID <u>612</u>		Sample Identification						
Sampling Date: 01/21/14	TB_RD-61_012114	10x	11	9	10				
Acetone	13	65	3.3/10U	3.7/10U	5.2/10U				

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Spikes**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A

Were all surrogate %R within QC limits?

Y (N) N/A

If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		6	BFB	117 ( 86-115 )	Jdets/P (all TCL cmpds)
				( )	
		11	BFB	118 ( 86-115 )	Jdets/P (all TCL cmpds)
				( )	
		12	BFB	118 ( 86-115 )	Jdets/P (all TCL cmpds)
				( )	
		MB 280-209656/7	BFB	118 ( 86-115 )	Jdets/P (all TCL cmpds)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

(TOL) = Toluene-d8  
 (BFB) = Bromofluorobenzene

(DCE) = 1,2-Dichloroethane-d4  
 (DFM) = Dibromofluoromethane

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: VOAS BY EPA SW 846 Method 8260B

Analyte	Concentration (µg/L)		RPD (≤35)	Qualification Parent Only
	9	10		
F	3.7	5.2	34	-

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 21, 2014  
**LDC Report Date:** February 24, 2014  
**Matrix:** Water  
**Parameters:** 1,4-Dioxane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51368-1

### Sample Identification

RD-06\_012114\_01  
RD-67\_012114\_01  
TB\_RD-67\_012114  
RD-48B\_012114\_01  
TB\_RD-48B\_012114  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36  
RD-61\_012114\_01  
TB\_RD-61\_012114

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-67\_012114, TB\_RD-48B\_012114 and TB\_RD-61\_012114 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-67_012114_01 TB_RD-67_012114 RD-48B_012114_01 TB_RD-48B_012114 RD-48C_012114_01 RD-62_012114_01 RD-44_012114_01 RD-44_012114_36 RD-61_012114_01 TB_RD-61_012114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A1b  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: *ym*  
 2nd Reviewer: *g*

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D=8+9
XVII.	Field blanks	ND	TB=3,5,11

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	RD-06_012114_01	11	TB_RD-61_012114	21		31	
2	RD-67_012114_01	12		22		32	
3	TB_RD-67_012114	13		23		33	
4	RD-48B_012114_01	14		24		34	
5	TB_RD-48B_012114	15		25		35	
6	RD-48C_012114_01	16		26		36	
7	RD-62_012114_01	17		27		37	
8	RD-44_012114_01	18		28		38	
9	RD-44_012114_36	19		29	MB 280-209505	39	
10	RD-61_012114_01	20		30		40	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 24, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-48B\_012114\_01  
TB\_RD-48B\_012114  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-61\_012114\_01  
TB\_RD-61\_012114

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Samples TB\_RD-48B\_012114 and TB\_RD-61\_012114 were identified as trip blanks. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-48B_012114_01 TB_RD-48B_012114 RD-48C_012114_01 RD-62_012114_01 RD-61_012114_01 TB_RD-61_012114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A1c  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: J

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	CH
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2, 6

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	RD-48B_012114_01	11		21		31	
2	TB_RD-48B_012114	12		22		32	
3	RD-48C_012114_01	13		23		33	
4	RD-62_012114_01	14		24		34	
5	RD-61_012114_01	15		25		35	
6	TB_RD-61_012114	16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 440-1581 del 5	29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 24, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

### Sample Identification

RD-06\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A2a  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: *[Signature]*  
 2nd Reviewer: *[Signature]*

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client
VIII.	Laboratory control samples	A	LCS/IASD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *Water*

1	RD-06_012114_01	11		21		31	
2	RD-48B_012114_01	12		22		32	
3	RD-48C_012114_01	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-209800/1-A	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 24, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-67\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No N-nitrosodimethylamine was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-67_012114_01 RD-48B_012114_01 RD-48C_012114_01 RD-44_012114_01 RD-44_012114_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A2c

## VALIDATION COMPLETENESS WORKSHEET

Date: 2-13-14

SDG #: 280-51368-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: *Jm*2nd Reviewer: *J*

METHOD: GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	ND	5+6=D
XVII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*water*

1	RD-06_012114_01	11		21		31	
2	RD-67_012114_01	12		22		32	
3	RD-48B_012114_01	13		23		33	
4	RD-48C_012114_01	14		24		34	
5	RD-44_012114_01	15		25		35	
6	RD-44_012114_36	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 21, 2014  
**LDC Report Date:** February 19, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

### Sample Identification

RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36  
RD-48B\_012114\_01F  
RD-48C\_012114\_01F  
RD-44\_012114\_01F  
RD-44\_012114\_36F  
RD-48C\_012114\_01MS  
RD-48C\_012114\_01MSD  
RD-48B\_012114\_01FMS  
RD-48B\_012114\_01FMSD  
RD-44\_012114\_36FMS  
RD-44\_012114\_36FMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 6020 for Metals. The metals analyzed were Antimony, Barium, Beryllium, Cadmium, Cobalt, Copper, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Zinc, and Zirconium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Zirconium	0.00342 mg/L	RD-48B_012114_01 RD-48C_012114_01
PB (prep blank)	Manganese	0.000362 mg/L	RD-48B_012114_01F RD-48C_012114_01F

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-48B_012114_01	Zirconium	0.0038 mg/L	0.0038U mg/L
RD-48C_012114_01	Zirconium	0.0048 mg/L	0.0048U mg/L

No field blanks were identified in this SDG.

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51368-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

Samples RD-44\_012114\_01 and RD-44\_012114\_36 and samples RD-44\_012114\_01F and RD-44\_012114\_36F were identified as split samples. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-44_012114_01	RD-44_012114_36			
Barium	0.016	0.016	0 (≤35)	-	-
Lead	0.00032	0.00018U	56 (≤35)	NQ	-
Molybdenum	0.0016	0.00016	0 (≤35)	-	-
Nickel	0.00062	0.00093	40 (≤35)	NQ	-
Thallium	0.000094	0.000050U	61 (≤35)	NQ	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-44_012114_01F	RD-44_012114_36F			
Barium	0.016	0.015	6 (≤35)	-	-
Molybdenum	0.0016	0.0015	6 (≤35)	-	-
Nickel	0.00060	0.00089	39 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51368-1	RD-48B_012114_01 RD-48C_012114_01 RD-44_012114_01 RD-44_012114_36 RD-48B_012114_01F RD-48C_012114_01F RD-44_012114_01F RD-44_012114_36F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51368-1	RD-48B_012114_01	Zirconium	0.0038U mg/L	A	B
280-51368-1	RD-48C_012114_01	Zirconium	0.0048U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG



LDC #: 31307A4

## VALIDATION COMPLETENESS WORKSHEET

Date: 2-18-14

SDG #: 280-51368-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

MG

Reviewer: MG

2nd Reviewer:   METHOD: Metals (EPA SW 846 Method ~~6020A-7000~~ 6010B / 6020)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-21-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	not utilized
XI.	ICP Serial Dilution	A ✓	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	SW	D = 3+4      D = 7+8
XV.	Field Blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

all water

1	RD-48B_012114_01	11	RD-48B_012114_01FMS	21		31	
2	RD-48C_012114_01	12	RD-48B_012114_01FMSD	22		32	
3	RD-44_012114_01	13	RD-44_012114_36FMS	23		33	
4	RD-44_012114_36	14	RD-44_012114_36FMSD	24		34	
5	RD-48B_012114_01F	15		25		35	
6	RD-48C_012114_01F	16		26		36	
7	RD-44_012114_01F	17		27		37	
8	RD-44_012114_36F	18		28		38	
9	RD-48C_012114_01MS	19		29	PBW1	39	
10	RD-48C_012114_01MSD	20		30	PBW2	40	

Notes: Samples appended with "F" were analyzed as dissolved



LDC #: 31307A4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1,2 Qual: U (B)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	2								
Zr		0.00342		0.0171	0.0038	0.0048								

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 5,6 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Mn		0.000362		0.00181										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	3	4		
Barium	0.016	0.016	0	
Lead	0.00032	0.00018U	56	No Qual.
Molybdenum	0.0016	0.0016	0	
Nickel	0.00062	0.00093	40	No Qual.
Thallium	0.000094	0.000050U	61	No Qual.

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	7	8		
Barium	0.016	0.015	6	
Molybdenum	0.0016	0.0015	6	
Nickel	0.00060	0.00089	39	No Qual.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 25, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-61\_012114\_01  
RD-06\_012114\_01DUP

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia-N, EPA Method 300.0 for Chloride, Fluoride and Nitrate and EPA SW 846 Method 9040B for pH.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
RD-06_012114_01	pH	61.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-48B_012114_01	pH	59.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-48C_012114_01	pH	57.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-06_012114_01DUP	pH	61.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-48B_012114_01	NO <sub>3</sub>	57.50 hours	48 hours	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.



## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51368-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01	pH	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51368-1	RD-48B_012114_01	NO <sub>3</sub>	J (all detects) UJ (all non-detects)	A	Technical holding time (H)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01 RD-62_012114_01 RD-61_012114_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A6  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-19-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD:** Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate (EPA Method 300.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: <u>1-21-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	N	<u>client specified</u>
VI.	Duplicates	A	<u>DUP</u>
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	RD-06_012114_01	11		21		31	
2	RD-48B_012114_01	12		22		32	
3	RD-48C_012114_01	13		23		33	
4	RD-62_012114_01	14		24		34	
5	RD-61_012114_01	15		25		35	
6	RD-06_012114_01DUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>PBW 1</u>	29		39	
10		20	<u>PBW 2</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**VALIDATION FINDINGS WORKSHEET**  
**Technical Holding Times**

All circled dates have exceeded the technical holding time.

N N/A Were all samples preserved as applicable to each method?

N N/A Were all cooler temperatures within validation criteria?

Method:		9040B		300.0			
Parameters:		pH		NO <sub>3</sub>			
Technical holding time:		48 hr		48 hr			
Sample ID	Sampling date	Analysis date	Analysis date	Analysis date	Analysis date	Analysis date	Qualifier
1	09:40 1-21-14	23:01 1-23-14	(61.25 hr)				J/UJ/P (H)
2	11:39 1-21-14		(59.25  )				
3	13:45 1-21-14		(57.25  )				
6	09:40 1-21-14		(61.25 ↓)				
2	11:39 1-21-14			21:09 1-23-14	(57.50 hr)		J/UJ/A

(NO<sub>3</sub> is a reanalysis)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 21, 2014  
**LDC Report Date:** February 24, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-48B\_012114\_01  
RD-48C\_012114\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-48B_012114_01 RD-48C_012114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A8  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: *[Signature]*  
 2nd Reviewer: *[Signature]*

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	client
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

1	RD-48B_012114_01	11		21		31	
2	RD-48C_012114_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-209805/HB	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 24, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No formaldehyde was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Formaldehyde - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01 RD-44_012114_01 RD-44_012114_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG



LDC #: 31307A71

## VALIDATION COMPLETENESS WORKSHEET

SDG #: 280-51368-1

Level V

Laboratory: Test America Inc.

Date: 2-13-14

Page: 1 of 1

Reviewer: YM2nd Reviewer: Q

METHOD: HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	client
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D=4+5
XIII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

water

1	RD-06_012114_01	11		21		31	
2	RD-48B_012114_01	12		22		32	
3	RD-48C_012114_01	13		23		33	
4	RD-44_012114_01	14		24		34	
5	RD-44_012114_36	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 24, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36  
RD-06\_012114\_01MS  
RD-06\_012114\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No hydrazines were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01 RD-44_012114_01 RD-44_012114_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307<sup>A</sup>076  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

Method DV-WC-0077  
**METHOD:** HPLC Hydrazines (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D = 4+5
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	RD-06_012114_01	11		21		31	
2	RD-48B_012114_01	12		22		32	
3	RD-48C_012114_01	13		23		33	
4	RD-44_012114_01	14		24		34	
5	RD-44_012114_36	15		25		35	
6	RD-06_012114_01MS	16		26		36	
7	RD-06_012114_01MSD	17		27		37	
8		18		28		38	
9		19	MB280-210399/27	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 24, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-48C\_012114\_01MS  
RD-48C\_012114\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. LC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-48C_012114_01MS/MSD (RD-48C_012114_01)	Perchlorate	-	-	18 (≤15)	J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

**IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Perchlorate - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-48C_012114_01	Perchlorate	J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (Q)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Perchlorate - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

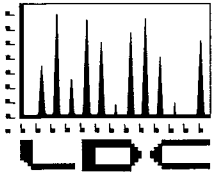
ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: water

1	RD-06_012114_01	11		21		31	
2	RD-48B_012114_01	12		22		32	
3	RD-48C_012114_01	13		23		33	
4	RD-48C_012114_01MS	14		24		34	
5	RD-48C_012114_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-210190/15	29		39	
10		20		30		40	





**LABORATORY DATA CONSULTANTS, INC.**  
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 27, 2014

SUBJECT: Revised Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the revised validation report for the fractions listed below. Please replace the previously submitted report with the enclosed revised report.

**LDC Project # 31307:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51368-1	Volatiles, 1,4-Dioxane

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 21, 2014  
**LDC Report Date:** March 25, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
TB\_RD-06\_012114  
RD-67\_012114\_01  
TB\_RD-67\_012114  
RD-48B\_012114\_01  
TB\_RD-48B\_012114  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36  
RD-61\_012114\_01  
TB\_RD-61\_012114

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-209656/7	1/23/14	Methylene chloride	0.601 ug/L	All samples in SDG 280-51368-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Samples TB\_RD-06\_012114, TB\_RD-67\_012114, TB\_RD-48B\_012114 and TB\_RD-61\_012114 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-06_012114	1/21/14	Acetone	8.2 ug/L	RD-06_012114_01
TB_RD-48B_012114	1/21/14	Acetone	7.7 ug/L	RD-48B_012114_01 RD-48C_012114_01 RD-62_012114_01

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-61_012114	1/21/14	Acetone	13 ug/L	RD-44_012114_01 RD-44_012114_36 RD-61_012114_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-06_012114_01	Acetone	3.9 ug/L	10U ug/L
RD-48B_012114_01	Acetone	4.3 ug/L	10U ug/L
RD-48C_012114_01	Acetone	4.0 ug/L	10U ug/L
RD-62_012114_01	Acetone	5.7 ug/L	10U ug/L
RD-61_012114_01	Acetone	3.3 ug/L	10U ug/L
RD-44_012114_01	Acetone	3.7 ug/L	10U ug/L
RD-44_012114_36	Acetone	5.2 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TB_RD-48B_012114	Bromofluorobenzene	117 (86-115)	All TCL compounds	J (all detects)	P
RD-61_012114_01	Bromofluorobenzene	118 (86-115)	All TCL compounds	J (all detects)	P
TB_RD-61_012114	Bromofluorobenzene	118 (86-115)	All TCL compounds	J (all detects)	P
MB 280-209656/7	Bromofluorobenzene	118 (86-115)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flags	A or P
	RD-44_012114_01	RD-44_012114_36			
Acetone	3.7	5.2	34 (≤35)	-	-

Samples RD-67\_012114\_01 and RD-67\_012114\_03 (from SDG 14A094) were identified as split samples. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-67_012114_03	RD-67_012114_01			
Acetone	10U	6.5	42 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	TB_RD-48B_012114 RD-61_012114_01 TB_RD-61_012114	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51368-1	RD-06_012114_01 TB_RD-06_012114 RD-67_012114_01 TB_RD-67_012114 RD-48B_012114_01 TB_RD-48B_012114 RD-48C_012114_01 RD-62_012114_01 RD-44_012114_01 RD-44_012114_36 RD-61_012114_01 TB_RD-61_012114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51368-1	RD-06_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-48B_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-48C_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-62_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-61_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-44_012114_01	Acetone	10U ug/L	A	T
280-51368-1	RD-44_012114_36	Acetone	10U ug/L	A	T

LDC #: 31307A1a  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: *[Signature]*  
 2nd Reviewer: *[Signature]*

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	client
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D=9+10, <del>11</del> S=3+RD-6T-012114-0
XVII.	Field blanks	SW	TB=2,4,6,12 (14A094)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

1	RD-06_012114_01	11	RD-61_012114_01	21	31
2	TB_RD-06_012114	12	TB_RD-61_012114	22	32
3	RD-67_012114_01	13		23	33
4	TB_RD-67_012114	14		24	34
5	RD-48B_012114_01	15		25	35
6	TB_RD-48B_012114	16		26	36
7	RD-48C_012114_01	17		27	37
8	RD-62_012114_01	18		28	38
9	RD-44_012114_01	19		29	39
10	RD-44_012114_36	20		30	40



## TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- ~~N~~ Y N/A Was a method blank associated with every sample in this SDG?
- ~~N~~ Y N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
- ~~N~~ Y N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 01/23/14

Conc. units: µg/L Associated Samples: All

Compound	Blank ID	Sample Identification								
	MB 280-209656/7	10x								
E	0.601	3.005								

VALIDATION FINDINGS WORKSHEET  
Field Blanks

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

N/A Were field blanks identified in this SDG?  
 N/A Were target compounds detected in the field blanks?

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 1 Qual U (T)

Compound	Blank ID <u>2</u>		Sample Identification						
Sampling Date: 01/21/14	TB_RD-06_012114	10x	1						
Acetone	8.2	82	3.9/10U						

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 5, 7-8 Qual U (T)

Compound	Blank ID <u>6</u>		Sample Identification						
Sampling Date: 01/21/14	TB_RD-48B_012114	10x	5	<u>T</u>	<u>8</u>				
Acetone	7.7	77	4.3/10U	<u>4.0/10U</u>	<u>5.7/10U</u>				

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 9-11 Qual U (T)

Compound	Blank ID <u>61</u>		Sample Identification						
Sampling Date: 01/21/14	TB_RD-61_012114	10x	11	<u>9</u>	<u>10</u>				
Acetone	13	65	3.3/10U	<u>3.7/10U</u>	<u>5.2/10U</u>				

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Method: GCMS VOA (EPA SW 846 Method 8260B)

Analyte	Concentration (ug/L)		RPD (≤35%)
	RD-67_012114_03	RD-67_012114_01	
F	10U	6.5	42 <i>NQ (EXPL)</i>

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: VOAS BY EPA SW 846 Method 8260B

Analyte	Concentration (µg/L)		RPD (§35)	Qualification Parent Only
	9	10		
F	3.7	5.2	34	-

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 21, 2014  
**LDC Report Date:** March 25, 2014  
**Matrix:** Water  
**Parameters:** 1,4-Dioxane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-67\_012114\_01  
TB\_RD-67\_012114  
RD-48B\_012114\_01  
TB\_RD-48B\_012114  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36  
RD-61\_012114\_01  
TB\_RD-61\_012114

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-67\_012114, TB\_RD-48B\_012114 and TB\_RD-61\_012114 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples.

Samples RD-67\_012114\_01 and RD-67\_012114\_03 (from SDG 14A094) were identified as split samples. No 1,4-dioxane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-67_012114_01 TB_RD-67_012114 RD-48B_012114_01 TB_RD-48B_012114 RD-48C_012114_01 RD-62_012114_01 RD-44_012114_01 RD-44_012114_36 RD-61_012114_01 TB_RD-61_012114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A1b  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: ym  
 2nd Reviewer: Q

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

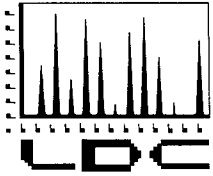
The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D=8+9, 2+RD-67.01214-03 (A094)
XVII.	Field blanks	ND	TB=3, 5, 11

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Water

1	RD-06_012114_01	11	TB_RD-61_012114	21		31	
2	RD-67_012114_01	12		22		32	
3	TB_RD-67_012114	13		23		33	
4	RD-48B_012114_01	14		24		34	
5	TB_RD-48B_012114	15		25		35	
6	RD-48C_012114_01	16		26		36	
7	RD-62_012114_01	17		27		37	
8	RD-44_012114_01	18		28		38	
9	RD-44_012114_36	19		29	MB 280-209505	39	
10	RD-61_012114_01	20		30		40	



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 11, 2014

SUBJECT: Revised Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the revised validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised report.

**LDC Project # 31307:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51368-1	N-Nitrosodimethylamine

- **Revised results for split samples**

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-67\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-44\_012114\_01  
RD-44\_012114\_36

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.



## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No N-nitrosodimethylamine was detected in any of the samples.

Samples RD-67\_012114\_01 and RD-67\_012114\_03 (from SDG 14A094A) were identified as split samples. No N-nitrosodimethylamine was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-67_012114_01 RD-48B_012114_01 RD-48C_012114_01 RD-44_012114_01 RD-44_012114_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A2c  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: CF

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	ND <del>SW</del> <sup>5+6=D</sup>	S = 2 + RD-67012114-03
XVII.	Field blanks	N	(14A094A)

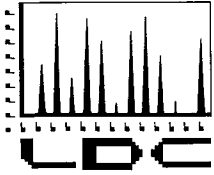
Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-06_012114_01	11		21		31	
2	RD-67_012114_01	12		22		32	
3	RD-48B_012114_01	13		23		33	
4	RD-48C_012114_01	14		24		34	
5	RD-44_012114_01	15		25		35	
6	RD-44_012114_36	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



**LABORATORY DATA CONSULTANTS, INC.**

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 20, 2014

SUBJECT: Revised Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the revised validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised report.

**LDC Project # 31307:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51368-1	N-Nitrosodimethylamine

Please feel free to contact us if you have any questions.

Sincerely,

  
Pei Geng  
Project Manager/Senior Chemist

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** March 18, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

### Sample Identification

RD-06\_012114\_01

RD-67\_012114\_01

RD-48B\_012114\_01

RD-48C\_012114\_01

RD-44\_012114\_01

RD-44\_012114\_36

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51368-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. System Performance

Raw data were not reviewed for this SDG.

### XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

### XV. Field Duplicates

Samples RD-44\_012114\_01 and RD-44\_012114\_36 were identified as field duplicates. No N-nitrosodimethylamine was detected in any of the samples.

Samples RD-67\_012114\_01 and RD-67\_012114\_03 (from SDG 14A094A) were identified as split samples. No N-nitrosodimethylamine was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-67_012114_01	RD-67_012114_03			
N-Nitrosodimethylamine	0.0050U	0.00117	124 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.



**Boeing SSFL GW 1st Qtr 2014  
 N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-67_012114_01 RD-48B_012114_01 RD-48C_012114_01 RD-44_012114_01 RD-44_012114_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A2c  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-13-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: J

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 11/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	SWB	S + 6 = D S = 2 + RD-67012114-03
XVII.	Field blanks	N	(14A094A)

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

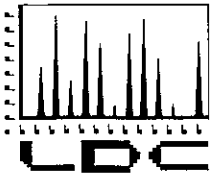
Validated Samples: water

1	RD-06_012114_01	11		21		31	
2	RD-67_012114_01	12		22		32	
3	RD-48B_012114_01	13		23		33	
4	RD-48C_012114_01	14		24		34	
5	RD-44_012114_01	15		25		35	
6	RD-44_012114_36	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET  
Field Splits

Method: GCMS NDMA (EPA Method 1625C)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	RD-67_012114_01	RD-67_012114_03		
NDMA	0.0050U	0.00117	124	NQ (<5xRL)



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

January 24, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

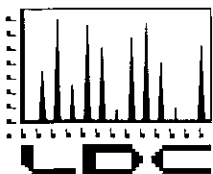
Enclosed is the final validation report for the fraction listed below. This SDG was received on February 11, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31312:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51369-1	Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007



Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist

**EDD Client Select IV LDC #31312 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	Dioxins (8290)		Matrix: Water/Soil																											
						W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51369-1 /H4A230403	02/11/14	03/05/14	4	0																												
Total	T/PG			4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** February 18, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51369-1

**Sample Identification**

RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-61\_012114\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4024020	1/26/14	OCDD	15 pg/L	All samples in SDG 280-51369-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-48B_012114_01	OCDD	1.8 pg/L	1.8U pg/L
RD-48C_012114_01	OCDD	4.8 pg/L	4.8U pg/L
RD-62_012114_01	OCDD	3.4 pg/L	3.4U pg/L
RD-61_012114_01	OCDD	2.0 pg/L	2.0U pg/L

No field blanks were identified in this SDG.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Regional Quality Assurance and Quality Control

Not applicable.

## IX. Internal Standards

All internal standard recoveries (%R) were within QC limits.

## X. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51369-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. System Performance

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51369-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51369-1	RD-48B_012114_01 RD-48C_012114_01 RD-62_012114_01 RD-61_012114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51369-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51369-1	RD-48B_012114_01	OCDD	1.8U pg/L	A	B
280-51369-1	RD-48C_012114_01	OCDD	4.8U pg/L	A	B
280-51369-1	RD-62_012114_01	OCDD	3.4U pg/L	A	B
280-51369-1	RD-61_012114_01	OCDD	2.0U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51369-1**

No Sample Data Qualified in this SDG

LDC #: 31312A21

### VALIDATION COMPLETENESS WORKSHEET

Date: 2/14/14

SDG #: 280-51369-1/~~H4A230403~~

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 01/21/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	client
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks		

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: *water*

1	RD-48B_012114_01	11		21		31	
2	RD-48C_012114_01	12		22		32	
3	RD-62_012114_01	13		23		33	
4	RD-61_012114_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	4024020	30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?

Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y N N/A Was the method blank contaminated?

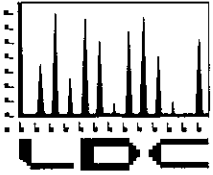
Blank extraction date: 01/26/14 Blank analysis date: 01/30/14 Associated samples: All Qual U (B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification							
		5x	1	2	3	4			
	4024020								
G	15	75.00	1.8*	4.8	3.4	2.0			

\*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

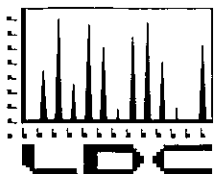
Enclosed is the final validation report for the fraction listed below. This SDG was received on February 12, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31314:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51425-1	Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007



Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist



EDD Client Select IV      **LDC #31314 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	Dioxins (8290)																											
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51425-1/	02/12/14	03/06/14	4	0																										
Total	T/PG			4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** February 18, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51425-1

**Sample Identification**

RD-99\_012214\_01  
RD-03\_012214\_01  
RD-03\_012214\_36  
RD-01\_012214\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4024020	1/26/14	OCDD	15 pg/L	All samples in SDG 280-51425-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-99_012214_01	OCDD	1.5 pg/L	1.5U pg/L
RD-03_012214_36	OCDD	2.1 pg/L	2.1U pg/L

Sample FB\_021214\_19 (from SDG 280-52090-1) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	OCDD	17 pg/L	RD-99_012214_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-99_012214_01	OCDD	1.5 pg/L	1.5U pg/L

**VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

**VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

**VIII. Regional Quality Assurance and Quality Control**

Not applicable.

**IX. Internal Standards**

All internal standard recoveries (%R) were within QC limits.

**X. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XI. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51425-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. System Performance

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	RD-03_012214_01	RD-03_012214_36			
OCDD	0.69U	2.1	101 (≤ 35)	NQ	-
OCDF	0.63U	1.1	54 (≤ 35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51425-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51425-1	RD-99_012214_01 RD-03_012214_01 RD-03_012214_36 RD-01_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51425-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51425-1	RD-99_012214_01	OCDD	1.5U pg/L	A	B
280-51425-1	RD-03_012214_36	OCDD	2.1U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51425-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51425-1	RD-99_012214_01	OCDD	1.5U pg/L	A	F

LDC #: 31314A21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2-14-14

SDG #: 280-51425-1/14A240405

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: *Jm*

2nd Reviewer: *CF*

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	client
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D = 2+3
XV.	Field blanks	SW	FB = FB_02/21/14_19 (from 280-52090-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

1	RD-99_012214_01	11		21		31	
2	RD-03_012214_01	12		22		32	
3	RD-03_012214_36	13		23		33	
4	RD-01_012214_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	4024020	30		40	

Notes: \_\_\_\_\_



## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were all samples associated with a method blank?

Y  N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y  N N/A Was the method blank contaminated?

Blank extraction date: 01/26/14    Blank analysis date: 01/30/14    Associated samples: All Qual U (B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification							
		5x	1	3					
	4024020								
G	15	75.00	1.5	2.1*					

\*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 31314 A21

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: \_\_\_\_\_

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were field blanks identified in this SDG?

Blank units: pg/L Associated sample units: pg/L

Sampling date: 2/12/14

Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 1 Qual U (F)

Compound	Blank ID	Sample Identification							
	<u>FB_021214_19</u>		<u>1</u>						
<u>G</u>	<u>17</u>		<u>1.5</u>						
CRQL									

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							
CRQL									

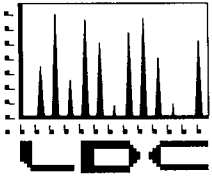
CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Method: HRGC/HRMS D/Fs (EPA SW 846 Method 8290)

Analyte	Concentration (pg/L)		RPD (≤ 35%)	Qualification Parent Only
	2	3		
G	0.69U	2.1	101	NQ
Q	0.63U	1.1	54	NQ

NQ: conc <5x RL



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

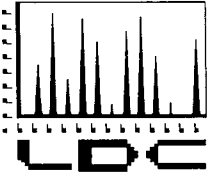
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 18, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31345:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51416-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-
280-51465-1	Trichloropropane, N-Nitrosodimethylamine, Chlorinated
280-51539-1	Pesticides, Polychlorinated Biphenyls, Metals, Wet
280-51586-1	Chemistry, Total Petroleum Hydrocarbons as Extractables,
280-51499-1/H4A300417	Explosives, Formaldehyde, Hydrazines, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																							
LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Li (6010B)		Diss. Li (6010B)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)			
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																							
A	280-51416-1	02/18/14	03/11/14	6	0	3	0	6	0	2	0	2	0	3	0	-	-	1	0	2	0	3	0	3	0	-	-	-	-	-	-	-	-	-	-	6	0	-	-
B	280-51465-1	02/18/14	03/11/14	13	0	9	0	13	0	6	0	4	0	10	0	-	-	-	-	-	-	3	0	3	0	-	-	-	-	-	-	3	0	7	0	-	-		
D	280-51539-1	02/18/14	03/11/14	12	0	10	0	10	0	7	0	1	0	7	0	1	0	1	0	1	0	1	0	1	0	-	-	-	-	1	0	-	-	7	0	2	0		
E	280-51586-1	02/18/14	03/11/14	12	0	8	0	11	0	8	0	4	0	8	0	-	-	-	-	3	0	3	0	3	0	-	-	-	-	-	-	7	0	7	0	-	-		
Total	T/PG			43	0	30	0	40	0	23	0	11	0	28	0	1	0	2	0	6	0	10	0	10	0	0	0	0	0	1	0	10	0	27	0	2	244		

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																						
LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)																								
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W
Matrix: Water/Soil																																						
A	280-51416-1	02/18/14	03/11/14	-	-	-	-	-	-	3	0	3	0	2	0																							
B	280-51465-1	02/18/14	03/11/14	-	-	-	-	-	-	6	0	-	-	8	0																							
C	280-51499-1/ H4A300417	02/18/14	03/11/14	-	-	3	0	-	-	-	-	-	-	-																								
D	280-51539-1	02/18/14	03/11/14	1	0	-	-	1	0	7	0	-	-	-	-																							
E	280-51586-1	02/18/14	03/11/14	-	-	-	-	-	-	8	0	-	-	6	0																							
Total	T/PG			1	0	3	0	1	0	24	0	3	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																						
LDC	SDG#	DATE REC'D	(3) DATE DUE	1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		SO <sub>4</sub> (300.0)		Total CN- (9012A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)												
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W
Matrix: Water/Soil																																						
A	280-51416-1	02/18/14	03/11/14	2	0	2	0	2	0	2	0	2	0	3	0	2	0	2	0	3	0	4	0	2	0	-	-											
B	280-51465-1	02/18/14	03/11/14	6	0	6	0	6	0	6	0	-	-	6	0	6	0	-	-	-	-	3	0	6	0	-	-											
D	280-51539-1	02/18/14	03/11/14	6	0	6	0	6	0	7	0	-	-	8	0	7	0	-	-	1	0	7	0	7	0	1	0											
E	280-51586-1	02/18/14	03/11/14	8	0	8	0	8	0	8	0	-	-	8	0	8	0	-	-	-	-	2	0	8	0	-	-											
Total	T/PG			22	0	22	0	22	0	23	0	2	0	25	0	23	0	2	0	4	0	16	0	23	0	1	0	0	0	0	0	0	0	0	0	0	0	185

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 22, 2014  
**LDC Report Date:** March 5, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-03\_012214\_01  
RD-03\_012214\_36  
TB\_RD-03\_012214  
RD-10\_012214\_01  
RD-01\_012214\_01  
TB\_RD-01\_012214



## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_RD-03\_012214 and TB\_RD-01\_012214 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-03_012214	1/22/14	Acetone	7.6 ug/L	RD-03_012214_01 RD-03_012214_36

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-03_012214_01	Toluene-d8 Bromofluorobenzene	86 (88-110) 83 (86-115)	All TCL compounds	J (all detects) UJ (all non-detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No volatiles were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-03_012214_01	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
280-51416-1	RD-03_012214_01 RD-03_012214_36 TB_RD-03_012214 RD-10_012214_01 RD-01_012214_01 TB_RD-01_012214	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A1a  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVL  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 1, 2
XVII.	Field blanks	SW	TB = 3, 6

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-03_012214_01	11	WB 280-209840/32	21		31	
2	RD-03_012214_36	12		22		32	
3	TB_RD-03_012214	13		23		33	
4	RD-10_012214_01	14		24		34	
5	RD-01_012214_01	15		25		35	
6	TB_RD-01_012214	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## TARGET COMPOUND WORKSHEET

**METHOD: VOA**

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31345 A1c

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y  N  N/A Were field blanks identified in this SDG?  
 Y  N  N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/22/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 1, 2 (ND)

Compound	Blank ID	Sample Identification							
	<u>3</u>								
<u>F</u>	<u>7.6</u>								

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".



LDC #: 3/345 A1a

### VALIDATION FINDINGS WORKSHEET Surrogate Spikes

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: A

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y  N  N/A Were all surrogate %R within QC limits?

Y  N  N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications Code: S
		1	TOL	86 (88-110)	J / US / P
			BFB	83 (86-115)	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

QC Limits (Water)

- SMC1 (TOL) = Toluene-d8
- SMC2 (BFB) = Bromofluorobenzene
- SMC3 (DCE) = 1,2-Dichloroethane-d4
- SMC4 (DFM) = Dibromofluoromethane

- 88-110
- 86-115
- 80-120
- 86-118

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 22, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** 1,4-Dioxane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-03\_012214\_01  
RD-03\_012214\_36  
TB\_RD-03\_012214  
RD-10\_012214\_01  
RD-01\_012214\_01  
TB\_RD-01\_012214  
RD-03\_012214\_01MS  
RD-03\_012214\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-03\_012214 and TB\_RD-01\_012214 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-03_012214_01 RD-03_012214_36 TB_RD-03_012214 RD-10_012214_01 RD-01_012214_01 TB_RD-01_012214	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A1b  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 1, 2
XVII.	Field blanks	ND	TB = 3, 6

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-03_012214_01	11	MB 280-210095/22	21		31	
2	RD-03_012214_36	12		22		32	
3	TB_RD-03_012214	13		23		33	
4	RD-10_012214_01	14		24		34	
5	RD-01_012214_01	15		25		35	
6	TB_RD-01_012214	16		26		36	
7	RD-03_012214_01MS	17		27		37	
8	RD-03_012214_01MSD	18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-03\_012214\_01

RD-03\_012214\_36

TB\_RD-03\_012214



## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Sample TB\_RD-03\_012214 was identified as a trip blank. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No 1,2,3-trichloropropane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51416-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51416-1	RD-03_012214_01 RD-03_012214_36 TB_RD-03_012214	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A1c

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/27/14

SDG #: 280-51416-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: JVG

2nd Reviewer: 9

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 1, 2
XVII.	Field blanks	ND	TB = 3

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

water							
1	RD-03_012214_01	11	MB 440-158418/3	21		31	
2	RD-03_012214_36	12		22		32	
3	TB_RD-03_012214	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-03\_012214\_01

RD-03\_012214\_36

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.



## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No semivolatiles were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51416-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51416-1	RD-03_012214_01 RD-03_012214_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A2a  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVC  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS / b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	*A	
XVI.	Field duplicates	ND	D = 1, 2
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-03_012214_01	11	MB 280-209800/A	21		31	
2	RD-03_012214_36	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Phthalates + NB

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-99\_012214\_01

RD-01\_012214\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-209810/1-A	1/29/14	Phenanthrene Pyrene	0.0105 ug/L 0.0101 ug/L	RD-01_012214_01
MB 280-210591/1-A	1/29/14	Benzo(g,h,i)perylene Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.00428 ug/L 0.139 ug/L 0.313 ug/L 0.0434 ug/L	RD-99_012214_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
RD-99_012214_01	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.17 ug/L 0.34 ug/L 0.29 ug/L	10U ug/L 10U ug/L 10U ug/L

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason
280-51416-1	RD-99_012214_01 RD-01_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P	Code
280-51416-1	RD-99_012214_01	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	10U ug/L 10U ug/L 10U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A2b  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level ~~IV~~ V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: 9

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 10
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-99_012214_01	11	MB 280-210591/A	21	31
2	RD-01_012214_01	12	- 209810/A	22	32
3		13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

PAH + Phthalates

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 31345 A26

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Was a method blank analyzed for each matrix?
- Y N N/A Was a method blank analyzed for each concentration preparation level?
- Y N N/A Was a method blank associated with every sample?
- Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 1/29/14 Blank analysis date: 2/04/14

Conc. units: ug/L Associated Samples: 2 (ND)

Compound	Blank ID	Sample Identification						
	<u>MB 280-209810</u>	<u>N/A</u>						
<u>UU</u>	<u>0.0105</u>							
<u>ZZ</u>	<u>0.0101</u>							

Blank extraction date: 1/29/14 Blank analysis date: 2/04/14

Conc. units: ug/L Associated Samples: 1 Code: B

Compound	Blank ID	Sample Identification						
	<u>MB 280-210591</u>	<u>N/A</u>	<u>1</u>					
<u>LLL</u>	<u>0.00928</u>							
<u>EEE</u>	<u>0.139</u>		<u>0.17/10U</u>					
<u>XX</u>	<u>0.313</u>		<u>0.34/↓</u>					
<u>LL</u>	<u>0.0434</u>		<u>0.29/↓</u>					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-99\_012214\_01  
RD-03\_012214\_01  
RD-03\_012214\_36

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No N-nitrosodimethylamine was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-99_012214_01 RD-03_012214_01 RD-03_012214_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A2c  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: W6  
 2nd Reviewer: 9

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 8270D-SIM) ~~Method 1625G~~  
 SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	WA	
XVI.	Field duplicates	ND	D = 2, 3
XVII.	Field blanks	N	EB

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-99_012214_01	11	MB 280-209740 / 1-A	21		31	
2	RD-03_012214_01	12		22		32	
3	RD-03_012214_36	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-99\_012214\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No chlorinated pesticide contaminants were found.

Sample FB\_012414\_19 (from SDG 280-52081-1) was identified as a field blank. No chlorinated pesticide contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-99_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A3a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/27/14

SDG #: 280-51416-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVB

2nd Reviewer: Q

**METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	EB = EB-RD-100_012414 (from 280-51492-1) FB = FB-012414-19 (from 280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-99_012214_01	11	MB 280-209987 A-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

(E = 10)



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-99\_012214\_01

RD-01\_012214\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No polychlorinated biphenyl contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

**XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

**XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

**XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-99_012214_01 RD-01_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A3b  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/22/14</u>
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VIII.	Laboratory control samples	A	<u>LCS / b</u>
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	<u>FB = FB-021214-19 (280-5081-1)</u>

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	RD-99_012214_01	11	<u>MB 280-209950/A</u>	21		31	
2	RD-01_012214_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 22, 2014  
**LDC Report Date:** February 27, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-99\_012214\_01  
RD-03\_012214\_01  
RD-03\_012214\_36  
RD-01\_012214\_01  
RD-99\_012214\_01F  
RD-03\_012214\_01F  
RD-03\_012214\_36F  
RD-01\_012214\_01F  
RD-99\_012214\_01MS  
RD-99\_012214\_01MSD  
RD-03\_012214\_01MS  
RD-03\_012214\_01MSD  
RD-99\_012214\_01FMS  
RD-99\_012214\_01FMSD  
RD-03\_012214\_01FMS  
RD-03\_012214\_01FMSD  
RD-01\_012214\_01FMS  
RD-01\_012214\_01FMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 18 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Lithium, Molybdenum, Mercury, Nickel, Selenium, Silver, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Boron	0.00496 mg/L	RD-01_012214_01
PB (prep blank)	Zinc	0.00459 mg/L	RD-99_012214_01F RD-01_012214_01F

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-99_012214_01F	Zinc	0.0062 mg/L	0.0062U mg/L
RD-01_012214_01F	Zinc	0.0069 mg/L	0.0069U mg/L

Samples EB\_RD-100\_012414, EB\_RD-100\_012424F (both from SDG 280-51492-1), EB\_RD-07\_020714, and EB\_RD-07\_020714F (both from SDG 280-51958-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Zinc	0.00044 mg/L 0.0028 mg/L	RD-99_012214_01
EB_RD-07_020714F	2/7/14	Antimony Zinc	0.00045 mg/L 0.0026 mg/L	RD-99_012214_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-99_012214_01	Zinc	0.010 mg/L	0.010U mg/L
RD-99_012214_01F	Antimony Zinc	0.00078 mg/L 0.0062 mg/L	0.00078U mg/L 0.0062U mg/L

#### V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

#### VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51416-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

Samples RD-03\_012214\_01 and RD-03\_012214\_36 and samples RD-03\_012214\_01F and RD-03\_012214\_36F were identified as split samples. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-03_012214_01	RD-03_012214_36			
Lithium	0.048	0.048	0 ( $\leq 35$ )	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-03_012214_01F	RD-03_012214_36F			
Lithium	0.049	0.051	4 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51416-1	RD-99_012214_01 RD-03_012214_01 RD-03_012214_36 RD-01_012214_01 RD-99_012214_01F RD-03_012214_01F RD-03_012214_36F RD-01_012214_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51416-1	RD-99_012214_01F	Zinc	0.0062U mg/L	A	B
280-51416-1	RD-01_012214_01F	Zinc	0.0069U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51416-1	RD-99_012214_01	Zinc	0.010U mg/L	A	F
280-51416-1	RD-99_012214_01F	Antimony Zinc	0.00078U mg/L 0.0062U mg/L	A	F

LDC #: 31345A4  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-26-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

METHOD: Metals (EPA SW 846 Method 6020A/7000) 7470A / 6020 / 6010B

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-22-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	not utilized
XI.	ICP Serial Dilution	A*	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	SW	D=2+3 D=6+7
XV.	Field Blanks	SW	EB=EB-RD-100-012414* (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

EB=EB-RD-100-012414\* (SDG: 280-52081-1)  
 FB=FB-021214-19\* (SDG: 280-52081-1)  
 FB=FB-021214-19F\* (SDG: 280-52081-1)

1	RD-99_012214_01	2	RD-03_012214_01MS	21		31	
2	RD-03_012214_01	12	RD-03_012214_01MSD	22		32	
3	RD-03_012214_36	13	RD-99_012214_01FMS	23		33	
4	RD-01_012214_01	14	RD-99_012214_01FMSD	24		34	
5	RD-99_012214_01F	15	RD-03_012214_01FMS	25		35	
6	RD-03_012214_01F	16	RD-03_012214_01FMSD	26		36	
7	RD-03_012214_36F	17	RD-01_012214_01FMS	27		37	PBW1
8	RD-01_012214_01F	18	RD-01_012214_01FMSD	28		38	PBW2
9	RD-99_012214_01MS	19		29		39	PBW3
10	RD-99_012214_01MSD	20		30		40	PBW4

Notes: Samples appended with "F" were analyzed as dissolved

More EBs

EB=EB-RD-07-020714 (SDG: 280-51958-)  
 EB=EB-RD-07-020714F (SDG: 280-51958-)



LDC #: 31345A4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 4 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual.									
B		0.00496		0.0248										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 5,8 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	5	8								
Zn		0.00459		0.0230	0.0062	0.0069								

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N N/A Were field blanks identified in this SDG?

N N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/7/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB Associated Samples: 1

Analyte	Blank ID	Sample Identification											
	EB_RD-07_020714	Action Level	1										
Sb	0.00044	0.0022											
Zn	0.0028	0.0140	0.010										

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/7/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB Associated Samples: 5

Analyte	Blank ID	Sample Identification											
	EB_RD-07_020714F	Action Level	5										
Sb	0.00045	0.0022	0.00078										
Zn	0.0026	0.0130	0.0062										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".



Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	2	3		
Lithium	0.048	0.048	0	

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	6	7		
Lithium	0.049	0.051	4	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** February 27, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-99\_012214\_01

RD-03\_012214\_01

RD-03\_012214\_36

RD-10\_012214\_01

RD-01\_012214\_01

RD-03\_012214\_01MS

RD-03\_012214\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia-N, EPA Method 300.0 for Chloride, Fluoride, Nitrate, and Sulfate, EPA SW 846 Method 9012A for Total Cyanide, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 9040B for pH.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicates**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51416-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flag	A or P
	RD-03_012214_01	RD-03_012214_36			
Ammonia as N	0.036 mg/L	0.034 mg/L	6 ( $\leq 35$ )	-	-
Chloride	56 mg/L	65 mg/L	15 ( $\leq 35$ )	-	-
Cyanide	0.0026 mg/L	0.034 mg/L	27 ( $\leq 35$ )	-	-
Fluoride	0.38 mg/L	0.38 mg/L	0 ( $\leq 35$ )	-	-
pH	7.18 units	7.18 units	0 ( $\leq 35$ )	-	-
Sulfate	120 mg/L	150 mg/L	22 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51416-1	RD-99_012214_01 RD-03_012214_01 RD-03_012214_36 RD-10_012214_01 RD-01_012214_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A6  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-26-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate, Sulfate (EPA Method 300.0), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1-22-14</u>
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	<u>MS/MSD</u>
VI.	Duplicates	N	
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	<u>SW</u>	<u>D=2+3</u>
XI	Field blanks	<u>ND</u>	<u>EB = EB-RD-100-012414 (SDG: 280-51492-1)</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
all water

FB = FB-021214-19 (SDG: 280-52081-1)  
EB = EB-RD-07-020714 (SDG: 280-51958-1)  
EB = EB-RD-109-021014 (SDG: 280-51987-1)

1	RD-99_012214_01	11		21		31	
2	RD-03_012214_01	12		22		32	
3	RD-03_012214_36	13		23		33	
4	RD-10_012214_01	14		24		34	
5	RD-01_012214_01	15		25		35	
6	RD-03_012214_01MS	16		26		36	
7	RD-03_012214_01MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20	<u>PBW</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	2	3		
Ammonia as N	0.036	0.034	6	
Chloride	56	65	15	
Cyanide	0.0026	0.0034	27	
Fluoride	0.38	0.38	0	
pH (pH units)	7.18	7.18	0	
Sulfate	120	150	22	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 22, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-99\_012214\_01  
RD-03\_012214\_01  
RD-03\_012214\_36  
RD-10\_012214\_01  
RD-75\_012214\_01  
RD-76\_012214\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as extractable contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compound quantitations were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
RD-75_012214_01	C <sub>8</sub> -C <sub>11</sub>	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	P

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-75_012214_01	C <sub>8</sub> -C <sub>11</sub>	J (all detects)	P	Compound quantitation (exceeded range) (*IX)
280-51416-1	RD-99_012214_01 RD-03_012214_01 RD-03_012214_36 RD-10_012214_01 RD-75_012214_01 RD-76_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A8  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/22/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 10
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	SW	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D = 2, 3
XIII.	Field blanks	JK SW ND	2B = 2B RD-0T-020T14 (280-51958-1) *FB = FB-021214-19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-99_012214_01	11	MB 280-209805/1-B	21		31	
2	RD-03_012214_01	12		22		32	
3	RD-03_012214_36	13		23		33	
4	RD-10_012214_01	14		24		34	
5	RD-75_012214_01	15		25		35	
6	RD-76_012214_01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
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## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Explosives

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-10\_012214\_01

RD-75\_012214\_01

RD-76\_012214\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330A for Explosives.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-10_012214_01 RD-75_012214_01 RD-76_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A40  
 SDG #: 280-51416-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Explosives (EPA SW 846 Method 8330A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/22/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VII.	Laboratory control samples	A	<u>LCS 1/2</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-10_012214_01	11	<u>MP 280-210126/1-A</u>	21		31
2	RD-75_012214_01	12	<u>↓ - 210578/1-A</u>	22		32
3	RD-76_012214_01	13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-99\_012214\_01

RD-03\_012214\_01

RD-03\_012214\_36



## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

Sample EB\_RD-110\_021014 (from SDG 280-51987-1) was identified as an equipment blank. No formaldehyde was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No formaldehyde was found.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No formaldehyde was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-99_012214_01 RD-03_012214_01 RD-03_012214_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345A71  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

## VALIDATION COMPLETENESS WORKSHEET

### Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: SVJ  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D = 23
XIII.	Field blanks	ND	EB = EB_RD-10-021014 (280-51987-1) EB = EB_021214-19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-99_012214_01	11	MB 240-117621/A-A	21	31
2	RD-03_012214_01	12		22	32
3	RD-03_012214_36	13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-03\_012214\_01

RD-03\_012214\_36

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-03\_012214\_01 and RD-03\_012214\_36 were identified as field duplicates. No hydrazines were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-03_012214_01 RD-03_012214_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31345076  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVP  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Hydrazines (EPA SW846 Method 8315A)  
*SOP DV-WC-0077*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/22/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	<u>LCS 1b</u>
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	<u>D = 1, 2</u>
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-03_012214_01	11	<u>MB 280-210399/27</u>	21		31	
2	RD-03_012214_36	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 22, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51416-1

### Sample Identification

RD-75\_012214\_01

RD-76\_012214\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Perchlorate - Data Qualification Summary - SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-75_012214_01 RD-76_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Perchlorate - Field Blank Data Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG



**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

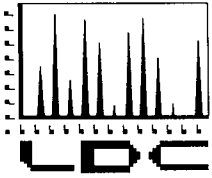
	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/22/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-75_012214_01	11	MB 280-210202/37	21		31	
2	RD-76_012214_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

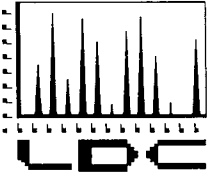
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 18, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31345:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51416-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, N-Nitrosodimethylamine, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Wet Chemistry, Total Petroleum Hydrocarbons as Extractables, Explosives, Formaldehyde, Hydrazines, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene
280-51465-1	
280-51539-1	
280-51586-1	
280-51499-1/H4A300417	

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Li (6010B)		Diss. Li (6010B)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)			
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																							
A	280-51416-1	02/18/14	03/11/14	6	0	3	0	6	0	2	0	2	0	3	0	-	-	1	0	2	0	3	0	3	0	-	-	-	-	-	-	-	-	6	0	-	-		
B	280-51465-1	02/18/14	03/11/14	13	0	9	0	13	0	6	0	4	0	10	0	-	-	-	-	-	-	3	0	3	0	-	-	-	-	-	-	3	0	7	0	-	-		
D	280-51539-1	02/18/14	03/11/14	12	0	10	0	10	0	7	0	1	0	7	0	1	0	1	0	1	0	1	0	1	0	-	-	-	-	1	0	-	-	7	0	2	0		
E	280-51586-1	02/18/14	03/11/14	12	0	8	0	11	0	8	0	4	0	8	0	-	-	-	-	3	0	3	0	3	0	-	-	-	-	-	-	7	0	7	0	-	-		
Total	T/PG			43	0	30	0	40	0	23	0	11	0	28	0	1	0	2	0	6	0	10	0	10	0	0	0	0	0	1	0	10	0	27	0	2	244		

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)																									
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil																																							
A	280-51416-1	02/18/14	03/11/14	-	-	-	-	-	-	3	0	3	0	2	0																								
B	280-51465-1	02/18/14	03/11/14	-	-	-	-	-	-	6	0	-	-	8	0																								
C	280-51499-1/ H4A300417	02/18/14	03/11/14	-	-	3	0	-	-	-	-	-	-	-																									
D	280-51539-1	02/18/14	03/11/14	1	0	-	-	1	0	7	0	-	-	-																									
E	280-51586-1	02/18/14	03/11/14	-	-	-	-	-	-	8	0	-	-	6	0																								
Total	T/PG			1	0	3	0	1	0	24	0	3	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48		

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		SO <sub>4</sub> (300.0)		Total CN- (9012A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)															
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S				
Matrix: Water/Soil																																									
A	280-51416-1	02/18/14	03/11/14	2	0	2	0	2	0	2	0	2	0	3	0	2	0	2	0	3	0	4	0	2	0	-	-														
B	280-51465-1	02/18/14	03/11/14	6	0	6	0	6	0	6	0	-	-	6	0	6	0	-	-	-	-	3	0	6	0	-	-														
D	280-51539-1	02/18/14	03/11/14	6	0	6	0	6	0	7	0	-	-	8	0	7	0	-	-	1	0	7	0	7	0	1	0														
E	280-51586-1	02/18/14	03/11/14	8	0	8	0	8	0	8	0	-	-	8	0	8	0	-	-	-	-	2	0	8	0	-	-														
Total	T/PG			22	0	22	0	22	0	23	0	2	0	25	0	23	0	2	0	4	0	16	0	23	0	1	0	0	0	0	0	0	0	0	0	0	185				

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
TB\_RD-43A\_012314  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
TB\_RD-58A\_012314  
RD-58B\_012314\_01  
RD-58C\_012314\_01  
RD-32\_012314\_01  
RD-32\_012314\_36  
TB\_RD-32\_012314  
RD-66\_012314\_01  
RD-71\_012314\_01

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-210448/5	1/29/14	Acetone	6.24 ug/L	RD-43A_012314_01 TB_RD-43A_012314 RD-58A_012314_01 TB_RD-58A_012314 RD-58B_012314_01 RD-58C_012314_01 TB_RD-32_012314 RD-66_012314_01 RD-71_012314_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
RD-43A_012314_01	Acetone	15 ug/L	15U ug/L
TB_RD-43A_012314	Acetone	16 ug/L	16U ug/L
RD-58A_012314_01	Acetone	13 ug/L	13U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TB_RD-58A_012314	Acetone	24 ug/L	24U ug/L
RD-58B_012314_01	Acetone	13 ug/L	13U ug/L
RD-58C_012314_01	Acetone	16 ug/L	16U ug/L
TB_RD-32_012314	Acetone	28 ug/L	28U ug/L
RD-66_012314_01	Acetone	18 ug/L	18U ug/L
RD-71_012314_01	Acetone	12 ug/L	12U ug/L

Samples TB\_RD-43A\_012314, TB\_RD-58A\_012314, and TB\_RD-32\_012314 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-43A_012314	1/23/14	Acetone	16 ug/L	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01
TB_RD-58A_012314	1/23/14	Acetone	24 ug/L	RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01
TB_RD-32_012314	1/23/14	Acetone	28 ug/L	RD-32_012314_01 RD-32_012314_36 RD-66_012314_01 RD-71_012314_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-43A_012314_01	Acetone	15 ug/L	15U ug/L
RD-43C_012314_01	Acetone	12 ug/L	12U ug/L
RD-58A_012314_01	Acetone	13 ug/L	13U ug/L
RD-58B_012314_01	Acetone	13 ug/L	13U ug/L



Sample	Compound	Reported Concentration	Modified Final Concentration
RD-58C_012314_01	Acetone	16 ug/L	16U ug/L
RD-32_012314_01	Acetone	3.9 ug/L	10U ug/L
RD-32_012314_36	Acetone	2.9 ug/L	10U ug/L
RD-66_012314_01	Acetone	18 ug/L	18U ug/L
RD-71_012314_01	Acetone	12 ug/L	12U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-43C_012314_01	Toluene-d8	111 (88-110)	All TCL compounds	J (all detects)	P
RD-58A_012314_01	Toluene-d8	112 (88-110)	Trichloroethene	J (all detects)	A
RD-66_012314_01	Bromofluorobenzene	80 (86-115)	All TCL compounds	J (all detects) UJ (all non-detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS 280-210448/4	Methyl ethyl ketone	157 (44-150)	RD-43A_012314_01 TB_RD-43A_012314 RD-58A_012314_01 TB_RD-58A_012314 RD-58B_012314_01 RD-58C_012314_01 TB_RD-32_012314 RD-66_012314_01 RD-71_012314_01 MB 280-210448/5	J (all detects)	P

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

### XIV. System Performance

Raw data were not reviewed for this SDG.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flags	A or P
	RD-32_012314_01	RD-32_012314_36			
Acetone	3.9	2.9	29 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43C_012314_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51465-1	RD-58A_012314_01	Trichloroethene	J (all detects)	A	Surrogate spikes (%R) (S)
280-51465-1	RD-66_012314_01	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
280-51465-1	RD-43A_012314_01 TB_RD-43A_012314_01 RD-58A_012314_01 TB_RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01 TB_RD-32_012314_01 RD-66_012314_01 RD-71_012314_01	Methyl ethyl ketone	J (all detects)	P	Laboratory control samples (%R) (L)
280-51465-1	RD-43A_012314_01 TB_RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 TB_RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01 RD-32_012314_01 RD-32_012314_36 TB_RD-32_012314_01 RD-66_012314_01 RD-71_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51465-1	RD-43A_012314_01	Acetone	15U ug/L	A	B
280-51465-1	TB_RD-43A_012314	Acetone	16U ug/L	A	B
280-51465-1	RD-58A_012314_01	Acetone	13U ug/L	A	B
280-51465-1	TB_RD-58A_012314	Acetone	24U ug/L	A	B
280-51465-1	RD-58B_012314_01	Acetone	13U ug/L	A	B

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51465-1	RD-58C_012314_01	Acetone	16U ug/L	A	B
280-51465-1	TB_RD-32_012314	Acetone	28U ug/L	A	B
280-51465-1	RD-66_012314_01	Acetone	18U ug/L	A	B
280-51465-1	RD-71_012314_01	Acetone	12U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51465-1	RD-43A_012314_01	Acetone	15U ug/L	A	T
280-51465-1	RD-43C_012314_01	Acetone	12U ug/L	A	T
280-51465-1	RD-58A_012314_01	Acetone	13U ug/L	A	T
280-51465-1	RD-58B_012314_01	Acetone	13U ug/L	A	T
280-51465-1	RD-58C_012314_01	Acetone	16U ug/L	A	T
280-51465-1	RD-32_012314_01	Acetone	10U ug/L	A	T
280-51465-1	RD-32_012314_36	Acetone	10U ug/L	A	T
280-51465-1	RD-66_012314_01	Acetone	18U ug/L	A	T
280-51465-1	RD-71_012314_01	Acetone	12U ug/L	A	T

LDC #: 31345B1a  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

## VALIDATION COMPLETENESS WORKSHEET

Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 9, 10
XVII.	Field blanks	SW	TB = 2, 6, 11

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-43A_012314_01	11	TB_RD-32_012314	21	MB 280-210281/5	31
2	TB_RD-43A_012314	12	RD-66_012314_01	22	↓ -210448/5	32
3	RD-43B_012314_01	13	RD-71_012314_01	23		33
4	RD-43C_012314_01	14		24		34
5	RD-58A_012314_01	15		25		35
6	TB_RD-58A_012314	16		26		36
7	RD-58B_012314_01	17		27		37
8	RD-58C_012314_01	18		28		38
9	RD-32_012314_01	19		29		39
10	RD-32_012314_36	20		30		40

VOCs + IPA = 1-8  
 VOCs = 9-13

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31345 B1a

## VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: 9

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Was a method blank associated with every sample in this SDG?

N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 1/29/14

Conc. units: ug/L

Associated Samples: 1, 2, 5-8, 11-13 Code: B

Compound	Blank ID	Sample Identification								
		1	2	5	6	7	8	11	12	13
	<u>MB 280-210448</u>									
<u>F</u>	<u>6.24</u>	<u>15/U</u>	<u>16/U</u>	<u>13/U</u>	<u>29/U</u>	<u>13/U</u>	<u>16/U</u>	<u>28/U</u>	<u>18/U</u>	<u>12/U</u>

Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification								
		1	2	5	6	7	8	11	12	13

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".



LDC #: 31345 B1A

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 2

Reviewer: JVG

2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/23/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: 1, 3, 4

Code: T

Compound	Blank ID	Sample Identification							
	<u>2</u>	<u>1</u>	<u>4</u>						
<u>F</u>	<u>16</u>	<u>15/u</u>	<u>12/u</u>						

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/23/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: 5, 7, 8 Code: T

Compound	Blank ID	Sample Identification							
	<u>6</u>	<u>5</u>	<u>7</u>	<u>8</u>					
<u>F</u>	<u>24</u>	<u>13/u</u>	<u>13/u</u>	<u>16/u</u>					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 3/345 B1a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Reviewer: JVG  
2nd Reviewer: Q

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?  
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/23/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 9 10 12 13 Code: T

Compound	Blank ID	Sample Identification							
	11	9	10	12	13				
F	28	3.9 / 10u	2.9 / 10u	18 / 11	12 / 4				

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".





**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field duplicate pairs identified in this SDG?  
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( $\mu\text{g/L}$ )		RPD ( $\leq 35\%$ )	Qualifications (Parent only)
	9	10		
F	3.9	2.9	29	

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 23, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** 1,4-Dioxane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
TB\_RD-43A\_012314  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
TB\_RD-58A\_012314  
RD-58B\_012314\_01  
RD-58C\_012314\_01  
RD-32\_012314\_01  
RD-32\_012314\_36  
TB\_RD-32\_012314  
RD-66\_012314\_01  
RD-71\_012314\_01

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-43A\_012314, TB\_RD-58A\_012314, and TB\_RD-32\_012314 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.



## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 TB_RD-43A_012314 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 TB_RD-58A_012314 RD-58B_012314_01 RD-58C_012314_01 RD-32_012314_01 RD-32_012314_36 TB_RD-32_012314 RD-66_012314_01 RD-71_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B1b  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: JVL  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1/5
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 9, 10
XVII.	Field blanks	ND	TB = 2, 6, 11

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-43A_012314_01	11	TB_RD-32_012314	21	MB 250-210274/5	31
2	TB_RD-43A_012314	12	RD-66_012314_01	22	-210451/5	32
3	RD-43B_012314_01	13	RD-71_012314_01	23		33
4	RD-43C_012314_01	14		24		34
5	RD-58A_012314_01	15		25		35
6	TB_RD-58A_012314	16		26		36
7	RD-58B_012314_01	17		27		37
8	RD-58C_012314_01	18		28		38
9	RD-32_012314_01	19		29		39
10	RD-32_012314_36	20		30		40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 23, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** 1,2,3-Trichloropropane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
TB\_RD-43A\_012314  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-32\_012314\_01  
RD-32\_012314\_36  
TB\_RD-32\_012314  
RD-66\_012314\_01  
RD-71\_012314\_01  
RD-43A\_012314\_01DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Samples TB\_RD-43A\_012314 and TB\_RD-32\_012314 were identified as trip blanks. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No 1,2,3-trichloropropane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 TB_RD-43A_012314 RD-43B_012314_01 RD-43C_012314_01 RD-32_012314_01 RD-32_012314_36 TB_RD-32_012314 RD-66_012314_01 RD-71_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG



LDC #: 31345B1c  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: JV  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/23/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates <u>/LD</u>	N/A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 5, 6
XVII.	Field blanks	ND	TB = 2, 7

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-43A_012314_01	11	MB 440-158862/3	21	31
2	TB_RD-43A_012314	12	158934/3	22	32
3	RD-43B_012314_01	13		23	33
4	RD-43C_012314_01	14		24	34
5	RD-32_012314_01	15		25	35
6	RD-32_012314_36	16		26	36
7	TB_RD-32_012314	17		27	37
8	RD-66_012314_01	18		28	38
9	RD-71_012314_01	19		29	39
10	RD-43A_012314_01DUP	20		30	40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
RD-58B\_012314\_01  
RD-58C\_012314\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. System Performance**

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B2a  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS / b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	W A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-43A_012314_01	11	MB 280-210552/1-A	21	31
2	RD-43B_012314_01	12		22	32
3	RD-43C_012314_01	13		23	33
4	RD-58A_012314_01	14		24	34
5	RD-58B_012314_01	15		25	35
6	RD-58C_012314_01	16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Phthalates + ND

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 23, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Polynuclear Aromatic Hydrocarbons  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43B\_012314\_01  
RD-32\_012314\_01  
RD-32\_012314\_36  
RD-66\_012314\_01



## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No polynuclear aromatic hydrocarbons were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-32_012314_01	RD-32_012314_36			
Fluoranthene	0.020	9.5U	199 (≤35)	NQ	-
Pyrene	0.049	9.5U	198 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
 Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43B_012314_01 RD-32_012314_01 RD-32_012314_36 RD-66_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B2b  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level ~~IV~~ V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM )  
 PAH

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 2, 3
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-43B_012314_01	11	MB 280-216291/1-A	21	31
2	RD-32_012314_01	12		22	32
3	RD-32_012314_36	13		23	33
4	RD-66_012314_01	14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

LDC #: 3/345 B26

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: 9

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

Y  N  N/A Were field duplicate pairs identified in this SDG?  
 Y  N  N/A Were target compounds identified in the field duplicate pairs?

Compound	Concentration ( <u>ug/L</u> )		RPD ( ≤ 35 % )	Qualifications (Parent only)
	2	3		
<u>YY</u>	<u>0.020</u>	<u>9.5 u</u>	<u>199</u>	<u>NQ (25x RL)</u>
<u>ZZ</u>	<u>0.049</u>	<u>9.5 u</u>	<u>198</u>	<u>↓</u>

Compound	Concentration ( )		RPD ( ≤ % )	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( ≤ % )	Qualifications (Parent only)

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
RD-58B\_012314\_01  
RD-58C\_012314\_01  
RD-32\_012314\_01  
RD-32\_012314\_36  
RD-66\_012314\_01  
RD-71\_012314\_01

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No N-nitrosodimethylamine was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01 RD-32_012314_01 RD-32_012314_36 RD-66_012314_01 RD-71_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B2c  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method ~~1625G~~ SN 846 Method 8270D-5/11)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/23/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	<u>LCS (b)</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	<u>NA</u>	
XVI.	Field duplicates	<u>ND</u>	<u>d = 7, 8</u>
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	RD-43A_012314_01	<u>11</u>	<u>MB 280-210500/1-A</u>	21		31	
2	RD-43B_012314_01	12		22		32	
3	RD-43C_012314_01	13		23		33	
4	RD-58A_012314_01	14		24		34	
5	RD-58B_012314_01	15		25		35	
6	RD-58C_012314_01	16		26		36	
7	RD-32_012314_01	17		27		37	
8	RD-32_012314_36	18		28		38	
9	RD-66_012314_01	19		29		39	
10	RD-71_012314_01	20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** February 27, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

**Sample Identification**

RD-43A\_012314\_01  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-43A\_012314\_01F  
RD-43B\_012314\_01F  
RD-43C\_012314\_01F  
RD-43A\_012314\_01MS  
RD-43A\_012314\_01MSD  
RD-43C\_012314\_01MS  
RD-43C\_012314\_01MSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Magnesium, Manganese, Molybdenum, Mercury, Selenium, Silver, Thallium, Tin, Vanadium, and Zinc

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Boron	0.00699 mg/L	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01
PB (prep blank)	Zinc	0.00459 mg/L	RD-43A_012314_01F RD-43B_012314_01F RD-43C_012314_01F

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-43C_012314_01F	Zinc	0.0055 mg/L	0.0055U mg/L

No field blanks were identified in this SDG.

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51465-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-43A_012314_01F RD-43B_012314_01F RD-43C_012314_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51465-1	RD-43C_012314_01F	Zinc	0.0055U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B4  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-26-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** Metals (EPA SW 846 Method ~~6020A/7000~~ <sup>9M4</sup> 6020/6010B/7470A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1-23-14</u>
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	<u>MS/MSD</u>
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	<u>LCS/LCSD</u>
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	<u>not utilized</u>
XI.	ICP Serial Dilution	<u>AX</u>	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	RD-43A_012314_01	11		21		31	
2	RD-43B_012314_01	12		22		32	
3	RD-43C_012314_01	13		23		33	
4	RD-43A_012314_01F	14		24		34	
5	RD-43B_012314_01F	15		25		35	
6	RD-43C_012314_01F	16		26		36	
7	RD-43A_012314_01MS	17		27		37	
8	RD-43A_012314_01MSD	18		28		38	
9	RD-43C_012314_01MS	19		29	<u>1 PBW1</u>	39	
10	RD-43C_012314_01MSD	20		30	<u>2 PBW2</u>	40	

Notes: Samples appended with "F" were analyzed as dissolved



LDC #: 31345B4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1-3 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer:

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
B		0.00699		0.0350										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 4-6 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	6									
Zn		0.00459		0.0230	0.0055									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** February 27, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

**Sample Identification**

RD-43A\_012314\_01  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
RD-58B\_012314\_01  
RD-58C\_012314\_01  
RD-43A\_012314\_01MS  
RD-43A\_012314\_01MSD  
RD-43A\_012314\_01DUP  
RD-43C\_012314\_01MS  
RD-43C\_012314\_01MSD

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia-N, EPA Method 300.0 for Fluoride and Nitrate, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 9040B for pH.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
RD-43A_012314_01	Nitrate	52.25 hours	48 hours	J (all detects)	P
	pH	51.75 hours	48 hours	UJ (all non-detects) J (all detects) UJ (all non-detects)	
RD-43B_012314_01	Nitrate	48.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-43C_012314_01	Nitrate	52.25 hours	48 hours	J (all detects)	P
	pH	50.75 hours	48 hours	UJ (all non-detects) J (all detects) UJ (all non-detects)	
RD-58A_012314_01	Nitrate	107.75 hours	48 hours	J (all detects) R (all non-detects)	P
RD-58A_012314_01	pH	107.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-58B_012314_01	Nitrate	109.75 hours	48 hours	J (all detects) R (all non-detects)	P
RD-58B_012314_01	pH	109.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-58C_012314_01	Nitrate	105.75 hours	48 hours	J (all detects) R (all non-detects)	P
RD-58C_012314_01	pH	105.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-43A_012314_01MS	Nitrate	52.75 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-43A_012314_01MSD	Nitrate	53.00 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-43A_012314_01DUP	Nitrate	52.50 hours	48 hours	J (all detects)	P
	pH	51.75 hours	48 hours	UJ (all non-detects) J (all detects) UJ (all non-detects)	

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51465-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.



## **X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43C_012314_01	Nitrate  pH	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51465-1	RD-43B_012314_01	Nitrate	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51465-1	RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01	Nitrate	J (all detects) R (all non-detects)	P	Technical holding time (H)
280-51465-1	RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01	pH	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B6  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-26-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Ammonia-N (EPA Method 350.1), Fluoride, Nitrate (EPA Method 300.0), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 1-23-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates <i>9MB</i>	ASW	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples:  
*all water*

1	RD-43A_012314_01	11	RD-43C_012314_01MSD	21		31	
2	RD-43B_012314_01	12		22		32	
3	RD-43C_012314_01	13		23		33	
4	RD-58A_012314_01	14		24		34	
5	RD-58B_012314_01	15		25		35	
6	RD-58C_012314_01	16		26		36	
7	RD-43A_012314_01MS	17		27		37	
8	RD-43A_012314_01MSD	18		28		38	
9	RD-43A_012314_01DUP	19		29		39	PBW1
10	RD-43C_012314_01MS	20		30		40	PBW2

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 23, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-32\_012314\_01  
RD-32\_012314\_36  
TB\_RD-32\_012314

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound	Concentration	Associated Samples
MB280-210193/5	1/27/14	C <sub>6</sub> -C <sub>12</sub>	10.4 ug/L	All samples in SDG 280-51465-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Sample TB\_RD-32\_012314 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.



## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-32_012314_01 RD-32_012314_36 TB_RD-32_012314	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B7  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 1/26/14  
 Page: 1 of 1  
 Reviewer: MB  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/23/14</u>
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	SW	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	CS 1b
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D = 1, 2
XIII.	Field blanks	ND	TB = 3

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-32_012314_01	11	MB 280-210 193/5	21		31
2	RD-32_012314_36	12		22		32
3	TB RD-32_012314	13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 31345 B7

# VALIDATION FINDINGS WORKSHEET

## Blanks

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD:  GC  HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A Were all samples associated with a given method blank?
- Y  N  N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
- Y  N  N/A Was a method blank performed with each extraction batch?
- Y  N  N/A Were any contaminants found in the method blanks? If yes, please see findings below.

### Level IV/D Only

- Y  N  N/A (Gasoline and aromatics only) Was a method blank analyzed with each 24 hour batch?
- Y  N  N/A Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?

Blank extraction date: N/A      Blank analysis date: 1/27/14      Associated samples: A11 (10)

Conc. units: ug/L

Compound	Blank ID	Sample Identification					
	MB 280-210193/E						
C6-C12	10.4						

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_ Associated samples: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Compound	Blank ID	Sample Identification					

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01

RD-43B\_012314\_01

RD-43C\_012314\_01

RD-58A\_012314\_01

RD-58B\_012314\_01

RD-58C\_012314\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B71  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	CS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

WATER

1	RD-43A_012314_01	11	MB 240-117688/2-A	21		31	
2	RD-43B_012314_01	12		22		32	
3	RD-43C_012314_01	13		23		33	
4	RD-58A_012314_01	14		24		34	
5	RD-58B_012314_01	15		25		35	
6	RD-58C_012314_01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
RD-58B\_012314\_01  
RD-58C\_012314\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 RD-58B_012314_01 RD-58C_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B76  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: JVC  
 2nd Reviewer: J

**METHOD:** HPLC Hydrazines (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS FB
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-43A_012314_01	11	MB 280-210399/27	21		31	
2	RD-43B_012314_01	12	↓ -210954/25	22		32	
3	RD-43C_012314_01	13		23		33	
4	RD-58A_012314_01	14		24		34	
5	RD-58B_012314_01	15		25		35	
6	RD-58C_012314_01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: (1, 3-6 = rec'd after 3 days)



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 23, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
RD-32\_012314\_01  
RD-32\_012314\_36  
RD-66\_012314\_01

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 RD-32_012314_01 RD-32_012314_36 RD-66_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B8  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/26/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/23/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VII.	Laboratory control samples	A	<u>LCS 1p</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	<u>D = 5, 6</u>
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-43A_012314_01	11	<u>MB 280-210284/1-B</u>	21		31	
2	RD-43B_012314_01	12		22		32	
3	RD-43C_012314_01	13		23		33	
4	RD-58A_012314_01	14		24		34	
5	RD-32_012314_01	15		25		35	
6	RD-32_012314_36	16		26		36	
7	RD-66_012314_01	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

### Sample Identification

RD-43A\_012314\_01  
RD-43B\_012314\_01  
RD-43C\_012314\_01  
RD-58A\_012314\_01  
RD-32\_012314\_01  
RD-32\_012314\_36  
RD-66\_012314\_01  
RD-71\_012314\_01

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as field duplicates. No perchlorate was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43A_012314_01 RD-43B_012314_01 RD-43C_012314_01 RD-58A_012314_01 RD-32_012314_01 RD-32_012314_36 RD-66_012314_01 RD-71_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31345B87 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-51465-1

Level V

Laboratory: Test America, Inc.

Date: 2/26/14

Page: 1 of 1

Reviewer: *SV*

2nd Reviewer: *g*

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	ND	D = 5, 6
XVI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

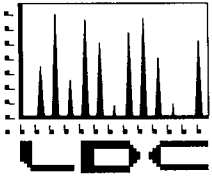
ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*USC/EL*

1	RD-43A_012314_01	11	<del>MB 290-117688/12-A</del>	21		31	
2	RD-43B_012314_01	12	MB 280-211148/7	22		32	
3	RD-43C_012314_01	13	↓ -211541/14	23		33	
4	RD-58A_012314_01	14		24		34	
5	RD-32_012314_01	15		25		35	
6	RD-32_012314_36	16		26		36	
7	RD-66_012314_01	17		27		37	
8	RD-71_012314_01	18		28		38	
9		19		29		39	
10		20		30		40	



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

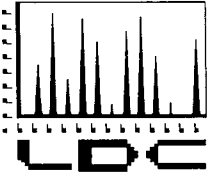
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 18, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31345:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51416-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, N-Nitrosodimethylamine, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Wet Chemistry, Total Petroleum Hydrocarbons as Extractables, Explosives, Formaldehyde, Hydrazines, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene
280-51465-1	
280-51539-1	
280-51586-1	
280-51499-1/H4A300417	

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																							
LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Li (6010B)		Diss. Li (6010B)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)			
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																							
A	280-51416-1	02/18/14	03/11/14	6	0	3	0	6	0	2	0	2	0	3	0	-	-	1	0	2	0	3	0	3	0	-	-	-	-	-	-	-	-	-	-	6	0	-	-
B	280-51465-1	02/18/14	03/11/14	13	0	9	0	13	0	6	0	4	0	10	0	-	-	-	-	-	-	3	0	3	0	-	-	-	-	-	-	-	-	3	0	7	0	-	-
D	280-51539-1	02/18/14	03/11/14	12	0	10	0	10	0	7	0	1	0	7	0	1	0	1	0	1	0	1	0	1	0	-	-	-	-	1	0	-	-	7	0	7	0	2	0
E	280-51586-1	02/18/14	03/11/14	12	0	8	0	11	0	8	0	4	0	8	0	-	-	-	-	3	0	3	0	3	0	-	-	-	-	-	-	-	7	0	7	0	-	-	
Total	T/PG			43	0	30	0	40	0	23	0	11	0	28	0	1	0	2	0	6	0	10	0	10	0	0	0	0	0	1	0	10	0	27	0	2	244		

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																							
LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)																									
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																							
A	280-51416-1	02/18/14	03/11/14	-	-	-	-	-	-	3	0	3	0	2	0																								
B	280-51465-1	02/18/14	03/11/14	-	-	-	-	-	-	6	0	-	-	8	0																								
C	280-51499-1/ H4A300417	02/18/14	03/11/14	-	-	3	0	-	-	-	-	-	-	-	-																								
D	280-51539-1	02/18/14	03/11/14	1	0	-	-	1	0	7	0	-	-	-	-																								
E	280-51586-1	02/18/14	03/11/14	-	-	-	-	-	-	8	0	-	-	6	0																								
Total	T/PG			1	0	3	0	1	0	24	0	3	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	

EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																						
LDC	SDG#	DATE REC'D	(3) DATE DUE	1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		SO <sub>4</sub> (300.0)		Total CN- (9012A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)												
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W
Matrix: Water/Soil																																						
A	280-51416-1	02/18/14	03/11/14	2	0	2	0	2	0	2	0	2	0	3	0	2	0	2	0	3	0	4	0	2	0	-	-											
B	280-51465-1	02/18/14	03/11/14	6	0	6	0	6	0	6	0	-	-	6	0	6	0	-	-	-	-	3	0	6	0	-	-											
D	280-51539-1	02/18/14	03/11/14	6	0	6	0	6	0	7	0	-	-	8	0	7	0	-	-	1	0	7	0	7	0	1	0											
E	280-51586-1	02/18/14	03/11/14	8	0	8	0	8	0	8	0	-	-	8	0	8	0	-	-	-	-	2	0	8	0	-	-											
Total	T/PG			22	0	22	0	22	0	23	0	2	0	25	0	23	0	2	0	4	0	16	0	23	0	1	0	0	0	0	0	0	0	0	0	0	0	185

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Dioxins/Dibenzofurans  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51499-1/H4A300417

**Sample Identification**

RD-46B\_012414\_01  
RD-02\_012414\_01  
WS-04A\_012414\_01  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD



## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4031036MB	2/2/14	OCDD OCDF	1.6 pg/L 1.6 pg/L	All samples in SDG 280-51499-1/H4A300417

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-02_012414_01	OCDD	0.78 pg/L	0.78U pg/L
WS-04A_012414_01	OCDD	0.82 pg/L	0.82U pg/L

No field blanks were identified in this SDG.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Regional Quality Assurance and Quality Control

Not applicable.

## IX. Internal Standards

Internal standards data were not reviewed for Level II.

## X. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51499-1/H4A300417	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. System Performance

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51499-1/H4A300417**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51499-1/ H4A300417	RD-46B_012414_01 RD-02_012414_01 WS-04A_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51499-1/H4A300417**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51499-1/ H4A300417	RD-02_012414_01	OCDD	0.78U pg/L	A	B
280-51499-1/ H4A300417	WS-04A_012414_01	OCDD	0.82U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51499-1/H4A300417**

No Sample Data Qualified in this SDG

LDC #: 31345C21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/27/14

SDG #: 280-51499-1/H4A300417

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVC

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	N	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-46B_012414_01	11	4031036 MB	21	31
2	RD-02_012414_01	12		22	32
3	WS-04A_012414_01	13		23	33
4	RD-02_012414_01MS	14		24	34
5	RD-02_012414_01MSD	15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LDC #: 3/345021

## VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1  
 Reviewer: JG  
 2nd Reviewer: Q

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Were all samples associated with a method blank?
- Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
- Y N N/A Was the method blank contaminated?

Blank extraction date: 2/02/14      Blank analysis date: 2/04/14

Associated samples: All

Conc. units: pg/L

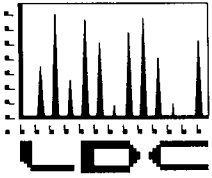
Compound	Blank ID	Sample Identification							
	4031036 MB	2	3						
G	1.6 *	0.78/U	0.82*/U						
Q	1.6 *								

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_ \* EMPC

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 18, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

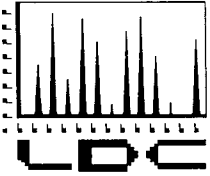
**LDC Project # 31345:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51416-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, N-Nitrosodimethylamine, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Wet Chemistry, Total Petroleum Hydrocarbons as Extractables, Explosives, Formaldehyde, Hydrazines, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene
280-51465-1	
280-51539-1	
280-51586-1	
280-51499-1/H4A300417	

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010





- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

**EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Li (6010B)		Diss. Li (6010B)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)			
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																							
A	280-51416-1	02/18/14	03/11/14	6	0	3	0	6	0	2	0	2	0	3	0	-	-	1	0	2	0	3	0	3	0	-	-	-	-	-	-	-	-	-	-	6	0	-	-
B	280-51465-1	02/18/14	03/11/14	13	0	9	0	13	0	6	0	4	0	10	0	-	-	-	-	-	-	3	0	3	0	-	-	-	-	-	-	-	3	0	7	0	-	-	
D	280-51539-1	02/18/14	03/11/14	12	0	10	0	10	0	7	0	1	0	7	0	1	0	1	0	1	0	1	0	1	0	-	-	-	-	1	0	-	-	7	0	2	0	-	-
E	280-51586-1	02/18/14	03/11/14	12	0	8	0	11	0	8	0	4	0	8	0	-	-	-	-	3	0	3	0	3	0	-	-	-	-	-	-	7	0	7	0	-	-		
Total	T/PG			43	0	30	0	40	0	23	0	11	0	28	0	1	0	2	0	6	0	10	0	10	0	0	0	0	0	1	0	10	0	27	0	2	244		

**EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)																								
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	
Matrix: Water/Soil																																						
A	280-51416-1	02/18/14	03/11/14	-	-	-	-	-	-	3	0	3	0	2	0																							
B	280-51465-1	02/18/14	03/11/14	-	-	-	-	-	-	6	0	-	-	8	0																							
C	280-51499-1/ H4A300417	02/18/14	03/11/14	-	-	3	0	-	-	-	-	-	-	-																								
D	280-51539-1	02/18/14	03/11/14	1	0	-	-	1	0	7	0	-	-	-																								
E	280-51586-1	02/18/14	03/11/14	-	-	-	-	-	-	8	0	-	-	6	0																							
Total	T/PG			1	0	3	0	1	0	24	0	3	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48

**EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		SO <sub>4</sub> (300.0)		Total CN- (9012A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)											
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																					
A	280-51416-1	02/18/14	03/11/14	2	0	2	0	2	0	2	0	2	0	3	0	2	0	2	0	3	0	4	0	2	0	-	-										
B	280-51465-1	02/18/14	03/11/14	6	0	6	0	6	0	6	0	-	-	6	0	6	0	-	-	-	-	3	0	6	0	-	-										
D	280-51539-1	02/18/14	03/11/14	6	0	6	0	6	0	7	0	-	-	8	0	7	0	-	-	1	0	7	0	7	0	1	0										
E	280-51586-1	02/18/14	03/11/14	8	0	8	0	8	0	8	0	-	-	8	0	8	0	-	-	-	-	2	0	8	0	-	-										
Total	T/PG			22	0	22	0	22	0	23	0	2	0	25	0	23	0	2	0	4	0	16	0	23	0	1	0	0	0	0	0	0	0	0	0	0	185

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

### Sample Identification

RD-51A\_012714\_01  
TB\_RD-51A\_012714  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
TB\_RD-52A\_012714  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
PZ-006E\_012714\_01  
TB\_PZ-006E\_012714  
RD-08\_012714\_01  
TB\_RD-08\_012714  
RD-51A\_012714\_01MS  
RD-51A\_012714\_01MSD

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-210603/5	1/29/14	Acetone	7.44 ug/L	All samples in SDG 280-51539-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
RD-51A_012714_01	Acetone	7.7 ug/L	10U ug/L
TB_RD-51A_012714	Acetone	8.3 ug/L	10U ug/L
RD-51B_012714_01	Acetone	4.7 ug/L	10U ug/L
RD-51C_012714_01	Acetone	2.9 ug/L	10U ug/L
RD-52A_012714_01	Acetone	6.8 ug/L	20U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TB_RD-52A_012714	Acetone	6.8 ug/L	10U ug/L
RD-52B_012714_01	Acetone	4.3 ug/L	10U ug/L
RD-52C_012714_01	Acetone	4.5 ug/L	10U ug/L
PZ-006E_012714_01	Acetone	7.0 ug/L	10U ug/L
TB_PZ-006E_012714	Acetone	5.3 ug/L	10U ug/L
RD-08_012714_01	Acetone	2.5 ug/L	10U ug/L
TB_RD-08_012714	Acetone	4.3 ug/L	10U ug/L

Samples TB\_RD-51A\_012714, TB\_RD-52A\_012714, TB\_PZ-006E\_012714, and TB\_RD-08\_012714 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-51A_012714	1/27/14	Acetone	8.3 ug/L	RD-51A_012714_01 RD-51B_012714_01 RD-51C_012714_01
TB_RD-52A_012714	1/27/14	Acetone	6.8 ug/L	RD-52A_012714_01 RD-52B_012714_01 RD-52C_012714_01
TB_PZ-006E_012714	1/27/14	Acetone	5.3 ug/L	PZ-006E_012714_01
TB_RD-08_012714	1/27/14	Acetone	4.3 ug/L	RD-08_012714_01

Samples EB\_RD-100\_012414 (from SDG 280-51492-1) and EB\_RD-07\_020714 (from SDG 280-57958-1) were identified as equipment blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Chloroform	0.51 ug/L	PZ-006E_012714_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-51A_012714_01	Acetone	7.7 ug/L	10U ug/L
RD-51B_012714_01	Acetone	4.7 ug/L	10U ug/L
RD-51C_012714_01	Acetone	2.9 ug/L	10U ug/L
RD-52A_012714_01	Acetone	6.8 ug/L	20U ug/L
RD-52B_012714_01	Acetone	4.3 ug/L	10U ug/L
RD-52C_012714_01	Acetone	4.5 ug/L	10U ug/L
PZ-006E_012714_01	Acetone Chloroform	7.0 ug/L 0.18 ug/L	10U ug/L 1.0U ug/L
RD-08_012714_01	Acetone	2.5 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-51A_012714_01	Toluene-d8	123 (88-110)	All TCL compounds	J (all detects)	A
TB_RD-51A_012714	Toluene-d8	121 (88-110)	All TCL compounds	J (all detects)	P
RD-51B_012714_01	Toluene-d8	118 (88-110)	All TCL compounds	J (all detects)	P
RD-52A_012714_01	Toluene-d8	112 (88-110)	All TCL compounds except cis-1,2-Dichloroethene Trichloroethene	J (all detects)	A
RD-52A_012714_01	Toluene-d8	120 (88-110)	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A
PZ-006E_012714_01	Toluene-d8	111 (88-110)	All TCL compounds	J (all detects)	P

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-08_012714_01	Toluene-d8	118 (88-110)	Acrolein Acrylonitrile	J (all detects) J (all detects)	A
MB280-210603/5	Toluene-d8	117 (88-110)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-51A_012714_01MS/MSD (RD-51A_012714_01)	Trichloroethene	-	71 (73-135)	-	J (all detects) UJ (all non-detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.



### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 RD-52A_012714_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51539-1	TB_RD-51A_012714 RD-51B_012714_01 PZ-006E_012714_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51539-1	RD-08_012714_01	Acrolein Acrylonitrile	J (all detects) J (all detects)	A	Surrogate spikes (%R) (S)
280-51539-1	RD-51A_012714_01	Trichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51539-1	RD-51A_012714_01 TB_RD-51A_012714 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 TB_RD-52A_012714 RD-52B_012714_01 RD-52C_012714_01 PZ-006E_012714_01 TB_PZ-006E_012714 RD-08_012714_01 TB_RD-08_012714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51539-1	RD-51A_012714_01	Acetone	10U ug/L	A	B
280-51539-1	TB_RD-51A_012714	Acetone	10U ug/L	A	B
280-51539-1	RD-51B_012714_01	Acetone	10U ug/L	A	B
280-51539-1	RD-51C_012714_01	Acetone	10U ug/L	A	B
280-51539-1	RD-52A_012714_01	Acetone	20U ug/L	A	B
280-51539-1	TB_RD-52A_012714	Acetone	10U ug/L	A	B
280-51539-1	RD-52B_012714_01	Acetone	10U ug/L	A	B
280-51539-1	RD-52C_012714_01	Acetone	10U ug/L	A	B

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51539-1	PZ-006E_012714_01	Acetone	10U ug/L	A	B
280-51539-1	TB_PZ-006E_012714	Acetone	10U ug/L	A	B
280-51539-1	RD-08_012714_01	Acetone	10U ug/L	A	B
280-51539-1	TB_RD-08_012714	Acetone	10U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51539-1	RD-51A_012714_01	Acetone	10U ug/L	A	T
280-51539-1	RD-51B_012714_01	Acetone	10U ug/L	A	T
280-51539-1	RD-51C_012714_01	Acetone	10U ug/L	A	T
280-51539-1	RD-52A_012714_01	Acetone	20U ug/L	A	T
280-51539-1	RD-52B_012714_01	Acetone	10U ug/L	A	T
280-51539-1	RD-52C_012714_01	Acetone	10U ug/L	A	T
280-51539-1	PZ-006E_012714_01	Acetone Chloroform	10U ug/L 1.0U ug/L	A	T, F
280-51539-1	RD-08_012714_01	Acetone	10U ug/L	A	T

LDC #: 31345D1a  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: G

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	ZB = ZB-RD-07-020714 (280-519)
XVII.	Field blanks	SW	TB = 2, 6, 10, 12 EB = EB-RD-100-012414 (280-519) FB = FB-021214-19 (280-520811)

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinstate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Water

1	RD-51A_012714_01	11	RD-08_012714_01	21	VB 280-210448/5 (FFFF, 6666)	31
2	TB_RD-51A_012714	12	TB_RD-08_012714	22	-210603/5	32
3	RD-51B_012714_01	13	RD-51A_012714_01MS	23		33
4	RD-51C_012714_01	14	RD-51A_012714_01MSD	24		34
5	RD-52A_012714_01	15		25		35
6	TB_RD-52A_012714	16		26		36
7	RD-52B_012714_01	17		27		37
8	RD-52C_012714_01	18		28		38
9	PZ-006E_012714_01	19		29		39
10	TB_PZ-006E_012714	20		30		40

VOCs + IPA = 1-8  
 VOCs = 9, 10  
 App IX = 11, 12

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31345b1a

## VALIDATION FINDINGS WORKSHEET

### Blanks

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer:

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Was a method blank associated with every sample in this SDG?

N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 1/25/14

Conc. units: ug/L

Associated Samples: All      Code: B

Compound	Blank ID	Sample Identification									
	<u>MB 280-210603/5</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	
<u>F</u>	<u>7.44</u>	<u>7.7/10u</u>	<u>8.3/10u</u>	<u>4.7/10u</u>	<u>2.9/10u</u>	<u>6.8/10u</u>	<u>6.8/10u</u>	<u>4.3/10u</u>	<u>4.5/10u</u>	<u>7.0/10u</u>	

Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: same as above

Compound	Blank ID	Sample Identification									
	<u>MB 280-210603/5</u>	<u>10</u>	<u>11</u>	<u>12</u>							
<u>F</u>	<u>7.44</u>	<u>5.3/10u</u>	<u>2.5/10u</u>	<u>4.3/10u</u>							

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 31345 Dia

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 2

Reviewer: JVG

2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y/N/N/A Were field blanks identified in this SDG?

Y/N/N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/27/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other:

Associated Samples: 1, 3, 4

Code: T

Compound	Blank ID	Sample Identification			
	2	1	3	4	
F	8.3	7.7/10U	4.7/10U	2.9/10U	

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/27/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other:

Associated Samples: 5, 7, 8

Code: T

Compound	Blank ID	Sample Identification			
	6	5	7	8	
F	6.8	6.8/20U	4.3/10U	4.5/10U	

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31345 Dic

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 2 of 3

Reviewer: JVG

2nd Reviewer: C

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/27/14

Field blank type: (circle one) Field Blank / Rinsate Trip Blank / Other: \_\_\_\_\_

Associated Samples: 9 Code: T

Compound	Blank ID	Sample Identification							
	<u>10</u>	<u>9</u>							
<u>F</u>	<u>5.3</u>	<u>7.0/10u</u>							

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/27/14

Field blank type: (circle one) Field Blank / Rinsate Trip Blank / Other: \_\_\_\_\_

Associated Samples: 11 Code: T

Compound	Blank ID	Sample Identification							
	<u>12</u>	<u>11</u>							
<u>F</u>	<u>4.3</u>	<u>2.5/10u</u>							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".



LDC #: 31345 DIA

### VALIDATION FINDINGS WORKSHEET Field Blanks

Reviewer: JVG

2nd Reviewer: 9

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y / N / A Were field blanks identified in this SDG?

Y / N / A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/24/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: EB Associated Samples: 9 Code: F

Compound	Blank ID	Sample Identification							
	<u>EB_KD-100_0/2914</u>		<u>9</u>						
<u>K</u>	<u>0.51</u>		<u>0.18/1.00</u>						
<u>F</u>		<u>2.0</u>	<u>7.0/104</u>						

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31345D1a

## VALIDATION FINDINGS WORKSHEET Surrogate Spikes

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N/A

Were all surrogate %R within QC limits?

N/A

If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications Code: S
		1	TOL	123 (88-110)	J detx / A (qual all)
		2		121 ( )	J detx / P
		3		118 ( )	↓
		5		112 ( )	J detx / A (qual all except Q&Q, S)
		5		120 ( )	↓ (qual Q&Q, S)
		9		111 ( )	J detx / P (qual all)
		11		118 ( )	J detx / A (qual FFFF, GGGG)
		MB 280-210603/5	✓	117 (✓)	J detx / P (qual all)
				( )	
				( )	
				( )	
				( )	
				( )	

QC Limits (Water)

SMC1 (TOL) = Toluene-d8  
SMC2 (BFB) = Bromofluorobenzene  
SMC3 (DCE) = 1,2-Dichloroethane-d4  
SMC4 (DFM) = Dibromofluoromethane

88-110  
86-115  
80-120  
86-118

LDC #: 31345 D19

# VALIDATION FINDINGS WORKSHEET Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD :** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y  N  N/A

Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y  N  N/A

Was a MS/MSD analyzed every 20 samples of each matrix?

Y  N  N/A

Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	13/14	S	( )	71 (73-135)	( )	1	J / UJ / A (Q)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	< 22%	61-145%	< 14%
S.	Trichloroethene	62-137%	< 24%	71-120%	< 14%
V.	Benzene	66-142%	< 21%	76-127%	< 11%
CC.	Toluene	59-139%	< 21%	76-125%	< 13%
DD.	Chlorobenzene	60-133%	< 21%	75-130%	< 13%

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

### Sample Identification

RD-51A\_012714\_01  
TB\_RD-51A\_012714  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
TB\_RD-52A\_012714  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
RD-08\_012714\_01  
TB\_RD-08\_012714

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-51A\_012714, TB\_RD-52A\_012714, and TB\_RD-08\_012714 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 TB_RD-51A_012714 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 TB_RD-52A_012714 RD-52B_012714_01 RD-52C_012714_01 RD-08_012714_01 TB_RD-08_012714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG



LDC #: 31345D1b  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVK  
 2nd Reviewer: J

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/B
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2, 6, 10

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-51A_012714_01	11	MB 280-216451/5	21	31
2	TB_RD-51A_012714	12		22	32
3	RD-51B_012714_01	13		23	33
4	RD-51C_012714_01	14		24	34
5	RD-52A_012714_01	15		25	35
6	TB_RD-52A_012714	16		26	36
7	RD-52B_012714_01	17		27	37
8	RD-52C_012714_01	18		28	38
9	RD-08_012714_01	19		29	39
10	TB_RD-08_012714	20		30	40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 27, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** 1,2,3-Trichloropropane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

### Sample Identification

RD-51A\_012714\_01  
TB\_RD-51A\_012714  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
TB\_RD-52A\_012714  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
RD-08\_012714\_01  
TB\_RD-08\_012714  
RD-08\_012714\_01DUP

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Samples TB\_RD-51A\_012714, TB\_RD-52A\_012714, and TB\_RD-08\_012714 were identified as trip blanks. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 TB_RD-51A_012714 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 TB_RD-52A_012714 RD-52B_012714_01 RD-52C_012714_01 RD-08_012714_01 TB_RD-08_012714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D1c  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates / LD	N/A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2, 6, 10

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-51A_012714_01	11	RD-08_012714_01DUP	21	MB 440-158934/3	31
2	TB_RD-51A_012714	12		22	↓ - 159209/3	32
3	RD-51B_012714_01	13		23		33
4	RD-51C_012714_01	14		24		34
5	RD-52A_012714_01	15		25		35
6	TB_RD-52A_012714	16		26		36
7	RD-52B_012714_01	17		27		37
8	RD-52C_012714_01	18		28		38
9	RD-08_012714_01	19		29		39
10	TB_RD-08_012714	20		30		40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 27, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Semivolatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

### Sample Identification

RD-51A\_012714\_01  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
RD-08\_012714\_01



## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 RD-52B_012714_01 RD-52C_012714_01 RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D2a  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	<del>N</del> A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	RD-51A_012714_01	11	MB 280-210502/LA	21		31	
2	RD-51B_012714_01	12		22		32	
3	RD-51C_012714_01	13		23		33	
4	RD-52A_012714_01	14		24		34	
5	RD-52B_012714_01	15		25		35	
6	RD-52C_012714_01	16		26		36	
7	RD-08_012714_01	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Phthalates + NB = 1-6  
 APP IX = 7

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

PZ-006E\_012714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-210591/1-A	2/4/14	Benzo(g,h,i)perylene Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.00482 ug/L 0.139 ug/L 0.313 ug/L 0.0434 ug/L	All samples in SDG 280-51539-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
PZ-006E_012714_01	Benzo(g,h,i)perylene Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.0070 ug/L 0.36 ug/L 0.39 ug/L 0.434 ug/L	9.9U ug/L 9.9U ug/L 9.9U ug/L 9.9U ug/L

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No volatile contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found.



## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason
280-51539-1	PZ-006E_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P	Code
280-51539-1	PZ-006E_012714_01	Benzo(g,h,i)perylene Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	9.9U ug/L 9.9U ug/L 9.9U ug/L 9.9U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D2b  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level ~~IV~~ ✓

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVC  
 2nd Reviewer: JVC

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	EB = EB-RD-100-012414 (280-51492-1) FB = FB-021214-19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Water

1	PZ-006E_012714_01	11	MB 280-210591/A-A	21		31
2		12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

(EB-ND) PAH + Phthalates

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 31345 b26

## VALIDATION FINDINGS WORKSHEET

### Blanks

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: Q

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A Was a method blank analyzed for each matrix?
- Y  N  N/A Was a method blank analyzed for each concentration preparation level?
- Y  N  N/A Was a method blank associated with every sample?
- Y  N  N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 1/29/14 Blank analysis date: 2/04/14

Conc. units: ug/L Associated Samples: A1 Code: B

Compound	Blank ID	Sample Identification					
MB	250-21059	1-A (5X/100)	1				
LLL	0.00482	0.0241	0.0070	19 U			
EEE	0.139	1.39	0.36	↓			
XX	0.313	3.13	0.39	↓			
LL	0.0434	0.434	0.39	↓			

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 27, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

### Sample Identification

RD-51A\_012714\_01  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
RD-08\_012714\_01

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 RD-52B_012714_01 RD-52C_012714_01 RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D2c  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVK  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 4620C) *SW 846 Method 8270 D- SIM )*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1B
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *Water*

1	RD-51A_012714_01	11	<i>MB 280-210720/1-A</i>	21		31	
2	RD-51B_012714_01	12		22		32	
3	RD-51C_012714_01	13		23		33	
4	RD-52A_012714_01	14		24		34	
5	RD-52B_012714_01	15		25		35	
6	RD-52C_012714_01	16		26		36	
7	RD-08_012714_01	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Pentachlorophenol

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

### Sample Identification

RD-08\_012714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C-Low level for Pentachlorophenol.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No pentachlorophenol was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr, 2011  
Pentachlorophenol - Data Qualification Summary - SDG 280-51539-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51539-1	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Pentachlorophenol - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Pentachlorophenol - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D2d

## VALIDATION COMPLETENESS WORKSHEET

SDG #: 280-51539-1

Level V

Laboratory: Test America, Inc.

Date: 2/27/14

Page: 1 of 1

Reviewer: NE2nd Reviewer: A

METHOD: GC/MS Pentachlorophenol (EPA SW846 Method 8270C LL)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS B
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-08_012714_01	11	MB 280-210776/LA	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-08\_012714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

**XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

**XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

**XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D3a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/27/14

SDG #: 280-51539-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVB

2nd Reviewer: J

**METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	UCS 1D
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-08_012714_01	11	MB 280-210967/1-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-08\_012714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/27/14

SDG #: 280-51539-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: Y/G

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/27/14</u>
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	<u>LCS 1b</u>
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-08_012714_01	11	MB 280-210695/1-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 27, 2014  
**LDC Report Date:** February 27, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-08\_012714\_01  
RD-08\_012714\_01F  
RD-08\_012714\_01MS  
RD-08\_012714\_01MSD  
RD-08\_012714\_01FMS  
RD-08\_012714\_01FMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020 and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Tin, Vanadium, and Zinc

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. ICPMS Tune**

ICP-MS tune data were not reviewed for Level V.

## **III. Calibration**

Calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks.

No field blanks were identified in this SDG.

## **V. ICP Interference Check Sample (ICS) Analysis**

Interference check sample analysis data were not reviewed for Level V.

## **VI. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Internal Standards (ICP-MS)**

Internal standards data were not reviewed for Level V.

## **X. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **XI. ICP Serial Dilution**

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## **XII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51539-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51539-1	RD-08_012714_01 RD-08_012714_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D4  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-26-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

gmh

**METHOD:** Metals (EPA SW 846 Method ~~6020A/7000~~) 6020/7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-27-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	not utilized
XI.	ICP Serial Dilution	Ax	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 all water

1	RD-08_012714_01	11		21		31	
2	RD-08_012714_01F	12		22		32	
3	RD-08_012714_01MS	13		23		33	
4	RD-08_012714_01MSD	14		24		34	
5	RD-08_012714_01FMS	15		25		35	
6	RD-08_012714_01FMSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19 <sup>1</sup>	PBW1	29		39	
10		20 <sup>2</sup>	PBW2	30		40	

Notes: Samples appended with "F" were analyzed as dissolved



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Herbicides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-08\_012714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Herbicides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No herbicide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D5

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/27/14

SDG #: 280-51539-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVB

2nd Reviewer: JVB

**METHOD:** GC Herbicides (EPA SW 846 Method 8151A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1b
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-08_012714_01	11	MB 280-210381 1-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** February 27, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-51A\_012714\_01  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
PZ-006E\_012714\_01  
RD-08\_012714\_01  
RD-51A\_012714\_01MS  
RD-51A\_012714\_01MSD  
RD-51A\_012714\_01DUP

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia-N, EPA Method 300.0 for Fluoride and Nitrate, EPA SW 846 Method 9012A for Total Cyanide, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, and Standard Method 4500 S2 D for Sulfide.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52080-1) was identified as a field blank. No contaminant concentrations were found.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51539-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 RD-52B_012714_01 RD-52C_012714_01 PZ-006E_012714_01 RD-08_012714_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG



LDC #: 31345D6  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-26-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD:** Ammonia-N (EPA Method 350.1), Fluoride, Nitrate (EPA Method 300.0), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-27-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	ND	EB = EB-RD-100-012414 (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

FB = FB-021214-19 (SDG: 280-52080-1)  
 EB = EB-RD-07-020714 (SDG: 280-51958-1)  
 EB = EB-RD-109-021014 (SDG: 280-51987-1)

1	RD-51A_012714_01	11	RD-51A_012714_01DUP	21		31	
2	RD-51B_012714_01	12		22		32	
3	RD-51C_012714_01	13		23		33	
4	RD-52A_012714_01	14		24		34	
5	RD-52B_012714_01	15		25		35	
6	RD-52C_012714_01	16		26		36	
7	PZ-006E_012714_01	17		27		37	
8	RD-08_012714_01	18		28		38	
9	RD-51A_012714_01MS	19		29	PBW1	39	
10	RD-51A_012714_01MSD	20		30	PBW2	40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 27, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-51A\_012714\_01  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
PZ-006E\_012714\_01

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No polynuclear aromatic hydrocarbon contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No polynuclear aromatic hydrocarbon contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 RD-52B_012714_01 RD-52C_012714_01 PZ-006E_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D8  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

## VALIDATION COMPLETENESS WORKSHEET

Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JV  
 2nd Reviewer: Q

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/27/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	EB = EB_RD-07_020714 (280-51958-1) FB = FB_021214-19 (280-52081-1)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-51A_012714_01	11	MB 280-210983 / LB	21	31
2	RD-51B_012714_01	12		22	32
3	RD-51C_012714_01	13		23	33
4	RD-52A_012714_01	14		24	34
5	RD-52B_012714_01	15		25	35
6	RD-52C_012714_01	16		26	36
7	PZ-006E_012714_01	17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 27, 2014  
**LDC Report Date:** March 5, 2014  
**Matrix:** Water  
**Parameters:** 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-08\_012714\_01  
TB\_RD-08\_012714

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 504.1 for 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found in the method blanks.

Sample TB\_RD-08\_012714 was identified as a trip blank. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Data Qualification Summary -  
 SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-08_012714_01 TB_RD-08_012714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Laboratory Blank Data  
 Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Field Blank Data Qualification  
 Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D10

## VALIDATION COMPLETENESS WORKSHEET

Date: 2/27/14

SDG #: 280-51539-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc. Inc.

Reviewer: JVB

2nd Reviewer: [Signature]

METHOD: GC 1,2-Dibromoethane &amp; 1,2-Dibromo-3-chloropropane (EPA Method 504.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1D
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water							
1	RD-08_012714_01	11	MB 280-211536/4-A	21		31	
2	TB_RD-08_012714	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Organophosphorus Pesticides

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-08\_012714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8141A for Organophosphorus Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No organophosphorus pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. The percent recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Data Qualification Summary - SDG 280-51539-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51539-1	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D17

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/27/14

SDG #: 280-51539-1

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: JVC

2nd Reviewer: [Signature]

**METHOD:** GC Organophosphorus Pesticides (EPA SW 846 Method 8141A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/27/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VII.	Laboratory control samples	A	<u>CS 1p</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-08_012714_01	11	<u>MB 280-210779 1-A</u>	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Hexachlorophene

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

### Sample Identification

RD-08\_012714\_01  
RD-08\_012714\_01MS  
RD-08\_012714\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8321A for Hexachlorophene.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No hexachlorophene was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D44  
 SDG #: 280-51539-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: [Signature]

**METHOD:** LC/MS Hexachlorophene (EPA SW 846 Method 8321A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/27/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	<u>LCS</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	<del>N</del> A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-08_012714_01	11	<u>MB 280-216917/9</u>	21		31	
2	RD-08_012714_01MS	12		22		32	
3	RD-08_012714_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-51A\_012714\_01  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
RD-52B\_012714\_01  
RD-52C\_012714\_01  
RD-08\_012714\_01

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Formaldehyde - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 RD-52B_012714_01 RD-52C_012714_01 RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D71  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/27/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	<u>LCS</u>
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-51A_012714_01	<u>11</u>	<u>MB 240-117980/8-A</u>	21		31	
2	RD-51B_012714_01	12		22		32	
3	RD-51C_012714_01	13		23		33	
4	RD-52A_012714_01	14		24		34	
5	RD-52B_012714_01	15		25		35	
6	RD-52C_012714_01	16		26		36	
7	RD-08_012714_01	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-51A\_012714\_01  
RD-51B\_012714\_01  
RD-51C\_012714\_01  
RD-52A\_012714\_01  
RD-52B\_012714\_01  
RD-52C\_012714\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-51A_012714_01 RD-51B_012714_01 RD-51C_012714_01 RD-52A_012714_01 RD-52B_012714_01 RD-52C_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31345D76  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/27/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

SOP DV-WC-0677

**METHOD:** HPLC Hydrazines (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS 10
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

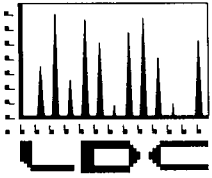
Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-51A_012714_01	11	MB 280-210954/25	21		31
2	RD-51B_012714_01	12	MB 280-211785/25	22		32
3	RD-51C_012714_01	13		23		33
4	RD-52A_012714_01	14		24		34
5	RD-52B_012714_01	15		25		35
6	RD-52C_012714_01	16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
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 \_\_\_\_\_



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

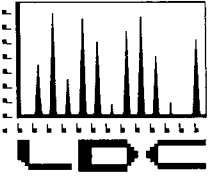
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 18, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31345:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51416-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-
280-51465-1	Trichloropropane, N-Nitrosodimethylamine, Chlorinated
280-51539-1	Pesticides, Polychlorinated Biphenyls, Metals, Wet
280-51586-1	Chemistry, Total Petroleum Hydrocarbons as Extractables,
280-51499-1/H4A300417	Explosives, Formaldehyde, Hydrazines, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Li (6010B)		Diss. Li (6010B)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)			
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																							
A	280-51416-1	02/18/14	03/11/14	6	0	3	0	6	0	2	0	2	0	3	0	-	-	1	0	2	0	3	0	3	0	-	-	-	-	-	-	-	-	-	-	6	0	-	-
B	280-51465-1	02/18/14	03/11/14	13	0	9	0	13	0	6	0	4	0	10	0	-	-	-	-	-	-	3	0	3	0	-	-	-	-	-	-	-	3	0	7	0	-	-	
D	280-51539-1	02/18/14	03/11/14	12	0	10	0	10	0	7	0	1	0	7	0	1	0	1	0	1	0	1	0	1	0	-	-	-	-	1	0	-	-	7	0	2	0	-	-
E	280-51586-1	02/18/14	03/11/14	12	0	8	0	11	0	8	0	4	0	8	0	-	-	-	-	3	0	3	0	3	0	-	-	-	-	-	-	7	0	7	0	-	-		
Total	T/PG			43	0	30	0	40	0	23	0	11	0	28	0	1	0	2	0	6	0	10	0	10	0	0	0	0	0	1	0	10	0	27	0	2	244		

**EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)																								
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	
Matrix: Water/Soil																																						
A	280-51416-1	02/18/14	03/11/14	-	-	-	-	-	-	3	0	3	0	2	0																							
B	280-51465-1	02/18/14	03/11/14	-	-	-	-	-	-	6	0	-	-	8	0																							
C	280-51499-1/ H4A300417	02/18/14	03/11/14	-	-	3	0	-	-	-	-	-	-	-																								
D	280-51539-1	02/18/14	03/11/14	1	0	-	-	1	0	7	0	-	-	-	-																							
E	280-51586-1	02/18/14	03/11/14	-	-	-	-	-	-	8	0	-	-	6	0																							
Total	T/PG			1	0	3	0	1	0	24	0	3	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48

**EDD Client Select IV LDC #31345 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		SO <sub>4</sub> (300.0)		Total CN- (9012A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)											
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																					
A	280-51416-1	02/18/14	03/11/14	2	0	2	0	2	0	2	0	2	0	3	0	2	0	2	0	3	0	4	0	2	0	-	-										
B	280-51465-1	02/18/14	03/11/14	6	0	6	0	6	0	6	0	-	-	6	0	6	0	-	-	-	-	3	0	6	0	-	-										
D	280-51539-1	02/18/14	03/11/14	6	0	6	0	6	0	7	0	-	-	8	0	7	0	-	-	1	0	7	0	7	0	1	0										
E	280-51586-1	02/18/14	03/11/14	8	0	8	0	8	0	8	0	-	-	8	0	8	0	-	-	-	-	2	0	8	0	-	-										
Total	T/PG			22	0	22	0	22	0	23	0	2	0	25	0	23	0	2	0	4	0	16	0	23	0	1	0	0	0	0	0	0	0	0	0	0	185

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-55A\_012814\_01  
TB\_RD-55A\_012814  
RD-55B\_012814\_01  
RD-38B\_012814\_01  
TB\_RD-38B\_012814  
RD-39B\_012814\_01  
TB\_RD-39B\_012814  
RD-36B\_012814\_01  
TB\_RD-36B\_012814  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD  
RD-36B\_012814\_01MS  
RD-36B\_012814\_01MSD

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-210805/5	1/30/14	Acetone	5.09 ug/L	RD-55A_012814_01 TB_RD-55A_012814 RD-55B_012814_01 RD-38B_012814_01 TB_RD-38B_012814 RD-39B_012814_01 TB_RD-39B_012814 RD-36B_012814_01 TB_RD-36B_012814 RD-36D_012814_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-55A_012814_01	Acetone	3.0 ug/L	10U ug/L
TB_RD-55A_012814	Acetone	5.7 ug/L	10U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-55B_012814_01	Acetone	4.9 ug/L	10U ug/L
RD-38B_012814_01	Acetone	5.5 ug/L	10U ug/L
TB_RD-38B_012814	Acetone	3.9 ug/L	10U ug/L
RD-39B_012814_01	Acetone	6.8 ug/L	10U ug/L
TB_RD-39B_012814	Acetone	5.0 ug/L	10U ug/L
RD-36B_012814_01	Acetone	4.8 ug/L	10U ug/L
TB_RD-36B_012814	Acetone	7.7 ug/L	10U ug/L
RD-36D_012814_01	Acetone	3.7 ug/L	10U ug/L

Samples TB\_RD-55A\_012814, TB\_RD-38B\_012814, TB\_RD-39B\_012814, and TB\_RD-36B\_012814 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-55A_012814	1/28/14	Acetone	5.7 ug/L	RD-55A_012814_01 RD-55B_012814_01
TB_RD-38B_012814	1/28/14	Acetone	3.9 ug/L	RD-38B_012814_01
TB_RD-39B_012814	1/28/14	Acetone	5.0 ug/L	RD-39B_012814_01
TB_RD-36B_012814	1/28/14	Acetone	7.7 ug/L	RD-36C_012814_01 RD-36C_012814_36 RD-36B_012814_01 RD-36D_012814_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-55A_012814_01	Acetone	3.0 ug/L	10U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-55B_012814_01	Acetone	4.9 ug/L	10U ug/L
RD-38B_012814_01	Acetone	5.5 ug/L	10U ug/L
RD-39B_012814_01	Acetone	6.8 ug/L	10U ug/L
RD-36B_012814_01	Acetone	4.8 ug/L	10U ug/L
RD-36C_012814_01	Acetone	26 ug/L	26U ug/L
RD-36C_012814_36	Acetone	24 ug/L	24U ug/L
RD-36D_012814_01	Acetone	3.7 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-55A_012814_01	Toluene-d8	116 (88-110)	All TCL compounds	J (all detects)	A
RD-38B_012814_01	Toluene-d8	111 (88-110)	All TCL compounds except Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects)	A
RD-38B_012814_01	1,2-Dichloroethane-d4 Dibromofluoromethane	71 (80-120) 80 (86-118)	Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A
TB_RD-38B_012814	Toluene-d8	114 (88-110)	All TCL compounds except Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects)	A
TB_RD-38B_012814	1,2-Dichloroethane-d4 Dibromofluoromethane	79 (80-120) 83 (86-118)	Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A
RD-36B_012814_01	Dibromofluoromethane	85 (86-118)	Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A
TB_RD-36B_012814	Dibromofluoromethane	85 (86-118)	2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
MB 280-210805/5	Toluene-d8	111 (88-110)	All TCL compounds	J (all detects)	P
MB 280-210853/5	Dibromofluoromethane	85 (86-118)	All TCL compounds	J (all detects) UJ (all non-detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-36B_012814_01MS/MSD (RD-36B_012814_01)	2-Chloroethylvinyl ether	-	-	69 (≤31)	J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

### XIV. System Performance

Raw data were not reviewed for this SDG.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-36C_012814_01	RD-36C_012814_36			
1,2-Dichloro,1,1,2-trifluoroethane	1.3	1.3	0 (≤35)	-	-
Acetone	26	24	8 (≤35)	-	-
cis-1,2-Dichloroethene	13	13	0 (≤35)	-	-
Toluene	0.18	0.18	0 (≤35)	-	-
trans-1,2-Dichloroethene	0.27	0.44	48 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.



**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-55A_012814_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51586-1	RD-38B_012814_01 TB_RD-38B_012814	All TCL compounds except Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects)	A	Surrogate spikes (%R) (S)
280-51586-1	RD-38B_012814_01 TB_RD-38B_012814 RD-36B_012814_01	Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-51586-1	TB_RD-36B_012814	2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-51586-1	RD-36B_012814_01	2-Chloroethylvinyl ether	J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (Q)
280-51586-1	RD-55A_012814_01 TB_RD-55A_012814 RD-55B_012814_01 RD-38B_012814_01 TB_RD-38B_012814 RD-39B_012814_01 TB_RD-39B_012814 RD-36B_012814_01 TB_RD-36B_012814 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51586-1	RD-55A_012814_01	Acetone	10U ug/L	A	B
280-51586-1	TB_RD-55A_012814	Acetone	10U ug/L	A	B
280-51586-1	RD-55B_012814_01	Acetone	10U ug/L	A	B
280-51586-1	RD-38B_012814_01	Acetone	10U ug/L	A	B
280-51586-1	TB_RD-38B_012814	Acetone	10U ug/L	A	B
280-51586-1	RD-39B_012814_01	Acetone	10U ug/L	A	B

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51586-1	TB_RD-39B_012814	Acetone	10U ug/L	A	B
280-51586-1	RD-36B_012814_01	Acetone	10U ug/L	A	B
280-51586-1	TB_RD-36B_012814	Acetone	10U ug/L	A	B
280-51586-1	RD-36D_012814_01	Acetone	10U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51586-1	RD-55A_012814_01	Acetone	10U ug/L	A	T
280-51586-1	RD-55B_012814_01	Acetone	10U ug/L	A	T
280-51586-1	RD-38B_012814_01	Acetone	10U ug/L	A	T
280-51586-1	RD-39B_012814_01	Acetone	10U ug/L	A	T
280-51586-1	RD-36B_012814_01	Acetone	10U ug/L	A	T
280-51586-1	RD-36C_012814_01	Acetone	26U ug/L	A	T
280-51586-1	RD-36C_012814_36	Acetone	24U ug/L	A	T
280-51586-1	RD-36D_012814_01	Acetone	10U ug/L	A	T

LDC #: 31345E1a  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/28/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS / D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 10, 11
XVII.	Field blanks	SW	TB = 2, 5, 7, 9

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*water*

1	RD55A_012814_01	11 <sup>4</sup>	RD-36C_012814_36	21 <sup>1</sup>	MB 280-210805/6	31
2	TB_RD-55A_012814	12 <sup>1</sup>	RD-36D_012814_01	22 <sup>2</sup>	-216853/5	32 (FFF, GGG, II)
3	RD-55B_012814_01	13	RD-39B_012814_01MS	23 <sup>3</sup>	-210907/6	33
4	RD-38B_012814_01	14	RD-39B_012814_01MSD	24 <sup>4</sup>	-211662/7	34
5	TB_RD-38B_012814	15	RD-36B_012814_01MS	25		35
6	RD-39B_012814_01	16	RD-36B_012814_01MSD	26		36
7	TB_RD-39B_012814	17		27		37
8	RD-36B_012814_01	18		28		38
9	TB_RD-36B_012814	19		29		39
10	RD-36C_012814_01	20		30		40

VOC's + IPA = 1-3, 6, 7, 12  
 Spd H<sub>2</sub>O + IPA = 4, 5, 8, 9  
 Spd H<sub>2</sub>O = 10, 11

## TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP. 1,2-Dichloro, 1,1,2-trifluoro eth
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 3/3/15 E1a

## VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Was a method blank associated with every sample in this SDG?

N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 1/30/14

Conc. units: ug/L

Associated Samples: 1-9 12 Code: B

Compound	Blank ID	Sample Identification										
		1	2	3	4	5	6	7	8	9	12	
	MB 280-210	05/6										
F	5.09	3.0/10u	5.7/10u	4.9/10u	5.5/10u	3.9/10u	6.8/10u	5.0/10u	4.8/10u	<del>3.7</del> /10u	3.7/ /10u	

Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification										
		1	2	3	4	5	6	7	8	9	12	

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 31345 E1a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 2

Reviewer: JVG

2nd Reviewer: q

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y/N/N/A Were field blanks identified in this SDG?

Y/N/N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/28/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 1, 3 Code: T

Compound	Blank ID	Sample Identification							
	<u>2</u>	<u>1</u>	<u>3</u>						
<u>F</u>	<u>5.7</u>	<u>3.0/10u</u>	<u>4.9/10u</u>						

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/28/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 4 Code: T

Compound	Blank ID	Sample Identification							
	<u>5</u>	<u>4</u>							
<u>F</u>	<u>3.9</u>	<u>5.5/10u</u>							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31345 E1a

## VALIDATION FINDINGS WORKSHEET

### Field Blanks

Page: 2 of 2

Reviewer: JVG

2nd Reviewer: 9

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y / N / N/A Were field blanks identified in this SDG?

Y / N / N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/28/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: 6

Code: T

Compound	Blank ID	Sample Identification							
	7	4							
F	5.0	6.8 / 10u							

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/28/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: 8

10-12

Code: T

Compound	Blank ID	Sample Identification							
	9	8	10	11	12				
F	7.7	4.8 / 10u	26 / u	29 / 10u	3.7 / 10u				

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Spikes**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y  N  N/A

Were all surrogate %R within QC limits?

Y  N  N/A

If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications Code: <u>S</u>
		1	TOL	116 (See below)	J dete / A (qual all TOL)
		4	TOL	111 ( )	↓ (qual all except FFFF, GGGG, II)
		4	DCE	71 (80-120)	J/US / A (qual FFFF, GGGG, II)
			DFM	80 (86-118)	↓
		5	TOL	114 (88-110)	J dete / A (qual all except FFFF, GGGG, II)
		5	DCE	79 (80-120)	J/US / A (qual FFFF, GGGG, II)
			DFM	83 (86-118)	↓
		8	DFM	85 ( )	J/US / A ↓
		9	DFM	85 ( )	↓ (qual II only)
		MB 250 - 210805 / 5	TOL	111 (88-110)	J dete / P (all TOL)
		MB 250 - 210853 / 5	DFM	84 (86-118)	J/US / P ↓

QC Limits (Water)

- SMC1 (TOL) = Toluene-d8
- SMC2 (BFB) = Bromofluorobenzene
- SMC3 (DCE) = 1,2-Dichloroethane-d4
- SMC4 (DFM) = Dibromofluoromethane

- 88-110
- 86-115
- 80-120
- 86-118



**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates**

**METHOD** : GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	15/16	S	136 (7-135)	( )	( )	8	No qual #
		II	( )	( )	69 (31)	↓	5 det's / A (2)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		* parent conc
			( )	( )	( )		> 4x spike amt
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	< 22%	61-145%	< 14%
S.	Trichloroethene	62-137%	< 24%	71-120%	< 14%
V.	Benzene	66-142%	< 21%	76-127%	< 11%
CC.	Toluene	59-139%	< 21%	76-125%	< 13%
DD.	Chlorobenzene	60-133%	< 21%	75-130%	< 13%

**VALIDATION FINDINGS WORKSHEET**  
Field Duplicates

Method: GCMS VOA (EPA SW 846 Method 8260B)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	10	11		
PPPP	1.3	1.3	0	
F	26	24	8	
QQQ	13	13	0	
CC	0.18	0.18	0	
PPP	0.27	0.44	48	NQ (<5xRL)

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 28, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51586-1

### Sample Identification

RD-55A\_012814\_01  
TB\_RD-55A\_012814  
RD-55B\_012814\_01  
RD-38B\_012814\_01  
TB\_RD-38B\_012814  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
TB\_RD-36B\_012814  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD  
RD-36C\_012814\_01MS  
RD-36C\_012814\_01MSD

## Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-55A\_012814, TB\_RD-38B\_012814, and TB\_RD-36B\_012814 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-36C_012814_01	RD-36C_012814_36			
1,4-Dioxane	2.6	3.1	18 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-55A_012814_01 TB_RD-55A_012814 RD-55B_012814_01 RD-38B_012814_01 TB_RD-38B_012814 RD-39B_012814_01 RD-36B_012814_01 TB_RD-36B_012814 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E1b  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/24/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 9, 10
XVII.	Field blanks	ND	TB = 2, 5, 8

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD55A_012814_01	11	RD-36D_012814_01	21	MB 280-210657/5	31
2	TB_RD-55A_012814	12	RD-39B_012814_01MS	22	- 211488/14	32
3	RD-55B_012814_01	13	RD-39B_012814_01MSD	23	- 211718/5	33
4	RD-38B_012814_01	14	RD-36C_012814_01MS	24		34
5	TB_RD-38B_012814	15	RD-36C_012814_01MSD	25		35
6	RD-39B_012814_01	16		26		36
7	RD-36B_012814_01	17		27		37
8	TB_RD-36B_012814	18		28		38
9	RD-36C_012814_01	19		29		39
10	RD-36C_012814_36	20		30		40



VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: GCMS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	9	10		
1,4-Dioxane	2.6	3.1	18	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 28, 2014

**LDC Report Date:** March 5, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-38B\_012814\_01  
TB\_RD-38B\_012814  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
TB\_RD-36B\_012814  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Samples TB\_RD-38B\_012814 and TB\_RD-36B\_012814 were identified as trip blanks. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No 1,2,3-trichloropropane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-38B_012814_01 TB_RD-38B_012814 RD-39B_012814_01 RD-36B_012814_01 TB_RD-36B_012814 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E1c

## VALIDATION COMPLETENESS WORKSHEET

SDG #: 280-51586-1

Level V

Laboratory: Test America Inc.

Date: 2/24/14

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: C

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 6.7
XVII.	Field blanks	ND	TB = 2.5

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water							
1	RD-38B_012814_01	11	MB 440-159694/3	21		31	
2	TB_RD-38B_012814	12		22		32	
3	RD-39B_012814_01	13		23		33	
4	RD-36B_012814_01	14		24		34	
5	TB_RD-36B_012814	15		25		35	
6	RD-36C_012814_01	16		26		36	
7	RD-36C_012814_36	17		27		37	
8	RD-36D_012814_01	18		28		38	
9	RD-39B_012814_01MS	19		29		39	
10	RD-39B_012814_01MSD	20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 28, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-55A\_012814\_01  
RD-55B\_012814\_01  
RD-38B\_012814\_01  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD



## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-36C_012814_01	RD-36C_012814_36			
Bis(2-ethylhexyl)phthalate	1.1	1.4	24 ( $\leq 35$ )	-	-
Diethylphthalate	0.79	0.38U	70 ( $\leq 35$ )	NQ	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-55A_012814_01 RD-55B_012814_01 RD-38B_012814_01 RD-39B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E2a  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/28/14  
 Page: 1 of 1  
 Reviewer: *[Signature]*  
 2nd Reviewer: *[Signature]*

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	SW	D = 6, 7
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	RD55A_012814_01	11	MB 250-210998/-A	21		31	
2	RD-55B_012814_01	12		22		32	
3	RD-38B_012814_01	13		23		33	
4	RD-39B_012814_01	14		24		34	
5	RD-36B_012814_01	15		25		35	
6	RD-36C_012814_01	16		26		36	
7	RD-36C_012814_36	17		27		37	
8	RD-36D_012814_01	18		28		38	
9	RD-39B_012814_01MS	19		29		39	
10	RD-39B_012814_01MSD	20		30		40	

*Phthalates + NB*

## VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: GCMS SVOA (EPA SW 846 Method 8270C)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	6	7		
EEE	1.1	1.4	24	
LL	0.79	0.38U	70	NQ (<5xRL)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Polynuclear Aromatic Hydrocarbons  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-38B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36



## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No polynuclear aromatic hydrocarbons were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-38B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E2b  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level ~~IV~~ V

Date: 2/24/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS <sup>PAH</sup> Semivolatiles (EPA SW846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 6
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 3.4
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	RD-38B_012814_01	11	MB 280-211082/LA	21	31
2	RD-36B_012814_01	12		22	32
3	RD-36C_012814_01	13		23	33
4	RD-36C_012814_36	14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

### Sample Identification

RD-55A\_012814\_01  
RD-55B\_012814\_01  
RD-38B\_012814\_01  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.



### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No N-nitrosodimethylamine was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-55A_012814_01 RD-55B_012814_01 RD-38B_012814_01 RD-39B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E2c  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/24/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C) *SW 846 Method 8270D-SIM*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	<del>NA</del>	
VII.	Matrix spike/Matrix spike duplicates	NA	
VIII.	Laboratory control samples	A	LCS / D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	ND	D = 6.7
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *Water*

1	RD55A_012814_01	11	MB 250 210984 / I-A	21		31	
2	RD-55B_012814_01	12	-211146 / I-A	22		32	
3	RD-38B_012814_01	13		23		33	
4	RD-39B_012814_01	14		24		34	
5	RD-36B_012814_01	15		25		35	
6	RD-36C_012814_01	16		26		36	
7	RD-36C_012814_36	17		27		37	
8	RD-36D_012814_01	18		28		38	
9	RD-39B_012814_01MS	19		29		39	
10	RD-39B_012814_01MSD	20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 28, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-38B\_012814\_01

RD-36B\_012814\_01

RD-36C\_012814\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not reviewed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not reviewed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-38B_012814_01 RD-36B_012814_01 RD-36C_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG



LDC #: 31345E3b

# VALIDATION COMPLETENESS WORKSHEET

Date: 2/28/14

SDG #: 280-51586-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: SV6

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-38B_012814_01	11	11B 280-210695 / 1-A	21	31
2	RD-36B_012814_01	12		22	32
3	RD-36C_012814_01	13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** February 27, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-38B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-38B\_012814\_01F  
RD-36B\_012814\_01F  
RD-36C\_012814\_01F  
RD-36C\_012814\_01MS  
RD-36C\_012814\_01MSD  
RD-38B\_012814\_01FMS  
RD-38B\_012814\_01FMMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020 and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Copper, Lead, Mercury, Molybdenum, Selenium, Silver, and Zinc

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. ICPMS Tune**

ICP-MS tune data were not reviewed for Level V.

## **III. Calibration**

Calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks.

No field blanks were identified in this SDG.

## **V. ICP Interference Check Sample (ICS) Analysis**

Interference check sample analysis data were not reviewed for Level V.

## **VI. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For RD-36C\_012814\_01MS/MSD, no data were qualified for Barium and for RD-38B\_012814\_01FMS/MSD, no data were qualified for Zinc percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## **VII. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Internal Standards (ICP-MS)**

Internal standards data were not reviewed for Level V.

## **X. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

## **XI. ICP Serial Dilution**

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## **XII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51586-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51586-1	RD-38B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-38B_012814_01F RD-36B_012814_01F RD-36C_012814_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E4  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2-26-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

METHOD: Metals (EPA SW 846 Method ~~6020A/7000~~ <sup>9MA</sup> 6020/7470A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-28-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD #9/10: Zn-4x #7/8: Ba-4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	not utilized
XI.	ICP Serial Dilution	A X	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	RD-38B_012814_01	11		21		31	
2	RD-36B_012814_01	12		22		32	
3	RD-36C_012814_01	13		23		33	
4	RD-38B_012814_01F	14		24		34	
5	RD-36B_012814_01F	15		25		35	
6	RD-36C_012814_01F	16		26		36	
7	RD-36C_012814_01MS	17		27		37	
8	RD-36C_012814_01MSD	18		28		38	
9	RD-38B_012814_01FMS	19		29	PBW 1	39	
10	RD-38B_012814_01FMSD	20		30	PBW 2	40	

Notes: Samples appended with "F" were analyzed as dissolved





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 28, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51586-1

### Sample Identification

RD-55A\_012814\_01  
RD-55B\_012814\_01  
RD-38B\_012814\_01  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-55A\_012814\_01DUP  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD  
RD-39B\_012814\_01DUP

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia-N, EPA Method 300.0 for Fluoride and Nitrate, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 9040B for pH.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51586-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flag	A or P
	RD-36C_012814_01	RD-36C_012814_36			
Ammonia as N	0.049 mg/L	0.069 mg/L	34 ( $\leq 35$ )	-	-
Fluoride	0.39 mg/L	0.34 mg/L	14 ( $\leq 35$ )	-	-
pH	6.17 units	6.18 units	0 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51586-1	RD-55A_012814_01 RD-55B_012814_01 RD-38B_012814_01 RD-39B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E6  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-26-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Ammonia-N (EPA Method 350.1), Fluoride, Nitrate (EPA Method 300.0), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-28-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 6+7
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	RD55A_012814_01	11	RD-39B_012814_01MSD	21		31	
2	RD-55B_012814_01	12	RD-39B_012814_01DUP	22		32	
3	RD-38B_012814_01	13		23		33	
4	RD-39B_012814_01	14		24		34	
5	RD-36B_012814_01	15		25		35	
6	RD-36C_012814_01	16		26		36	
7	RD-36C_012814_36	17		27		37	
8	RD-36D_012814_01	18		28		38	
9	RD55A_012814_01DUP	19		29		39	
10	RD-39B_012814_01MS	20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	6	7		
Ammonia as N	0.049	0.069	34	
Fluoride	0.39	0.34	14	
pH (pH units)	6.17	6.18	0	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-38B\_012814\_01  
TB\_RD-38B\_012814  
RD-36B\_012814\_01  
TB\_RD-36B\_012814  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-36B\_012814\_01MS  
RD-36B\_012814\_01MSD

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Samples TB\_RD-38B\_012814 and TB\_RD-36B\_012814 were identified as trip blanks. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-36B_012814	1/28/14	TPH as gasoline (C6-C12)	11 ug/L	RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-36B_012814_01	TPH as gasoline (C6-C12)	21 ug/L	100U ug/L
RD-36C_012814_01	TPH as gasoline (C6-C12)	39 ug/L	100U ug/L
RD-36C_012814_36	TPH as gasoline (C6-C12)	28 ug/L	100U ug/L

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-36B_012814_01	a,a,a-Trifluorotoluene	388 (82-110)	All TCL compounds	J (all detects)	A

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-36C_012814_01	RD-36C_012814_36			
TPH as gasoline (C6-C12)	39	28	33 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-36B_012814_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51586-1	RD-38B_012814_01 TB_RD-38B_012814 RD-36B_012814_01 TB_RD-36B_012814 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51586-1	RD-36B_012814_01	TPH as gasoline (C6-C12)	100U ug/L	A	T
280-51586-1	RD-36C_012814_01	TPH as gasoline (C6-C12)	100U ug/L	A	T
280-51586-1	RD-36C_012814_36	TPH as gasoline (C6-C12)	100U ug/L	A	T

LDC #: 31345E7  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/24/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/28/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	<u>LCS 4</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	SW	<u>D = 5.6</u>
XIII.	Field blanks	SW	<u>TB = 2.4</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-38B_012814_01	11	<u>MB 280-210780 A</u>	21	31
2	TB_RD-38B_012814	12	<u>1 - 210960/4</u>	22	32
3	RD-36B_012814_01	13		23	33
4	TB_RD-36B_012814	14		24	34
5	RD-36C_012814_01	15		25	35
6	RD-36C_012814_36	16		26	36
7	RD-36D_012814_01	17		27	37
8	RD-36B_012814_01MS	18		28	38
9	RD-36B_012814_01MSD	19		29	39
10		20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 31345 E7

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: VB  
2nd Reviewer: Q

METHOD: GC HPLC

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/28/14

Field blank type: (circle one) Field Blank (Trip Blank) Atmospheric Blank / Ambient Blank  
Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other:

Associated Samples: 3, 5-7 Code: T

Compound	Blank ID	Blank ID	Sample Identification							
			3	5	6					
	4	(5x)								
<u>C<sub>6</sub>-G<sub>2</sub></u>	11	55	21 / 100 U	39 / 100 U	28 / 100 U					
CRQL										

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Trip Blank / Atmospheric Blank / Ambient Blank  
Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other:

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Blank ID	Sample Identification							
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".





VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: GC TPH as Gasoline (EPA SW 846 Method 8015B)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	5	6		
C6-C12	39	28	33	NQ (<5xRL)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Formaldehyde  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-55A\_012814\_01  
RD-55B\_012814\_01  
RD-38B\_012814\_01  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No formaldehyde was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-55A_012814_01 RD-55B_012814_01 RD-38B_012814_01 RD-39B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E71  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/24/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: d

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	ICS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D = 6.7
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD55A_012814_01	11	MB 290-118092/11-A	21	31
2	RD-55B_012814_01	12		22	32
3	RD-38B_012814_01	13		23	33
4	RD-39B_012814_01	14		24	34
5	RD-36B_012814_01	15		25	35
6	RD-36C_012814_01	16		26	36
7	RD-36C_012814_36	17		27	37
8	RD-36D_012814_01	18		28	38
9	RD-39B_012814_01MS	19		29	39
10	RD-39B_012814_01MSD	20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Hydrazines  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-55A\_012814\_01  
RD-55B\_012814\_01  
RD-38B\_012814\_01  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No hydrazines were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	RD-55A_012814_01 RD-55B_012814_01 RD-38B_012814_01 RD-39B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E76  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/25/14  
 Page: 1 of 1  
 Reviewer: SVG  
 2nd Reviewer: [Signature]

*Sop DV-WC-0077*  
**METHOD: HPLC Hydrazines (EPA SW846 Method 8315A)**

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS 1b
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D = 6.7
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	RD55A_012814_01	11	MB 280 - 210954/20	21	31
2	RD-55B_012814_01	12		22	32
3	RD-38B_012814_01	13		23	33
4	RD-39B_012814_01	14		24	34
5	RD-36B_012814_01	15		25	35
6	RD-36C_012814_01	16		26	36
7	RD-36C_012814_36	17		27	37
8	RD-36D_012814_01	18		28	38
9	RD-39B_012814_01MS	19		29	39
10	RD-39B_012814_01MSD	20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 4, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

HAR-17\_012814\_01  
RD-38B\_012814\_01  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD



## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51586-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51586-1	HAR-17_012814_01 RD-38B_012814_01 RD-39B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

LDC #: 31345E8  
 SDG #: 280-51586-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2/24/14  
 Page: 1 of 1  
 Reviewer: AVG  
 2nd Reviewer: Q

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/28/14</u>
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	<u>LCS</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	<u>ND</u>	<u>D = 5, 6</u>
XIII.	Field blanks	<u>N</u>	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	HAR-17_012814_01	<u>11</u>	<u>MB 280-210983A-B</u>	21		31	
2	RD-38B_012814_01	12		22		32	
3	RD-39B_012814_01	13		23		33	
4	RD-36B_012814_01	14		24		34	
5	RD-36C_012814_01	15		25		35	
6	RD-36C_012814_36	16		26		36	
7	RD-36D_012814_01	17		27		37	
8	RD-39B_012814_01MS	18		28		38	
9	RD-39B_012814_01MSD	19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 28, 2014

**LDC Report Date:** March 4, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51586-1

**Sample Identification**

RD-38B\_012814\_01  
RD-39B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01  
RD-36C\_012814\_36  
RD-36D\_012814\_01  
RD-39B\_012814\_01MS  
RD-39B\_012814\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. LC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-39B_012814_01MS/MSD (RD-39B_012814_01)	Perchlorate	-	77 (80-120)	-	J (all detects) UJ (all non-detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.



### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51586-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples RD-36C\_012814\_01 and RD-36C\_012814\_36 were identified as field duplicates. No perchlorate was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51586-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51586-1	RD-39B_012814_01	Perchlorate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51586-1	RD-38B_012814_01 RD-39B_012814_01 RD-36B_012814_01 RD-36C_012814_01 RD-36C_012814_36 RD-36D_012814_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51586-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	ND	D = 4, 5
XVI.	Field blanks	N	

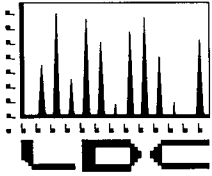
Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*Water*

1	RD-38B_012814_01	11	<del>MB 440-159686/8</del>	21		31	
2	RD-39B_012814_01	12	MB 280-211148/7	22		32	
3	RD-36B_012814_01	13	↓ -211521/14	23		33	
4	RD-36C_012814_01	14		24		34	
5	RD-36C_012814_36	15		25		35	
6	RD-36D_012814_01	16		26		36	
7	RD-39B_012814_01MS	17		27		37	
8	RD-39B_012814_01MSD	18		28		38	
9		19		29		39	
10		20		30		40	





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

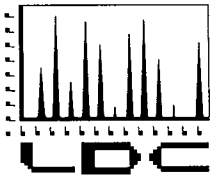
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31361:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51492-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51541-1/H4A290411	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51587-1/H4A300416	Nitrosodimethylamine, Chlorinated Pesticides,
280-51632-1	Polychlorinated Biphenyls, Metals, Wet Chemistry, Total
280-51633-1/H3B030412	Petroleum Hydrocarbons as Extractables, Explosives,
280-51670-1/H4B030402	Formaldehyde, Hydrazines, Perchlorate,
280-51767-1/H4B060406	Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 11, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51492-1

**Sample Identification**

EB\_RD-100\_012414  
RD-100\_012414\_01A  
TB\_RD-100\_012414A  
RD-46A\_012414\_01  
TB\_RD-46A\_012414  
RD-46B\_012414\_01  
RD-02\_012414\_01  
TB\_RD-02\_012414  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD



## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_RD-100\_012414A, TB\_RD-46A\_012414, and TB\_RD-02\_012414 were identified as trip blanks. No volatile contaminants were found.

Sample EB\_RD-100\_012414 was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Chloroform	0.51 ug/L	RD-100_012414_01A

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	1/24/14	Chloroform	0.50 ug/L	RD-100_012414_01A

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
EB_RD-100_012414	Toluene-d8	114 (88-110)	All TCL compounds except Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects)	A
RD-100_012414_01A	Toluene-d8	116 (88-110)	All TCL compounds except Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects)	A
RD-100_012414_01A	Toluene-d8 Bromofluorobenzene	82 (88-110) 80 (86-115)	Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A
RD-02_012414_01	Toluene-d8	118 (88-110)	cis-1,2-Dichloroethene Trichloroethene	J (all detects) J (all detects)	A
RD-02_012414_01	Toluene-d8	117 (88-110)	All TCL compounds except cis-1,2-Dichloroethene Trichloroethene	J (all detects)	A
MB 280-210412/5	Toluene-d8	121 (88-110)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-02_012414_01MS/MSD (RD-02_012414_01)	1,1-Dichloroethane	74 (75-135)	-	-	J (all detects) UJ (all non-detects)	A
	1,1-Dichloroethene	59 (71-136)	-	-		
	1,2-Dibromoethane	67 (71-135)	-	-		
	1,2-Dichlorobenzene	74 (75-135)	-	-		
	1,3-Dichloropropane	68 (70-135)	-	-		
	Acetone	42 (50-156)	-	-		
	Chlorobenzene	74 (76-135)	-	-		
	cis-1,3-Dichloropropene	65 (66-135)	-	-		

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	EB_RD-100_012414 RD-100_012414_01A	All TCL compounds except Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects)	A	Surrogate spikes (%R) (S)
280-51492-1	RD-100_012414_01A	Acrolein Acrylonitrile 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-51492-1	RD-02_012414_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51492-1	RD-02_012414_01	1,1-Dichloroethane 1,1-Dichloroethene 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichloropropane Acetone Chlorobenzene cis-1,3-Dichloropropene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51492-1	EB_RD-100_012414 RD-100_012414_01A TB_RD-100_012414A RD-46A_012414_01 TB_RD-46A_012414 RD-46B_012414_01 RD-02_012414_01 TB_RD-02_012414	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A1a  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: *SVB*  
 2nd Reviewer: *[Signature]*

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	<i>JB SW A</i>	
VI.	Surrogate spikes	<i>SW</i>	
VII.	Matrix spike/Matrix spike duplicates	<i>SW</i>	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / Split	<i>SVB N SW</i>	<i>S = 2 + RD-100-012414-03A (14A122)</i>
XVII.	Field blanks	<i>SW</i>	<i>EB = 1 TB = 3, 5, 8 FB = FB-021214-19</i>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

(280-52081-1)

Validated Samples:

*Water*

1	<i>2/1</i> EB RD-100_012414	11	<i>1</i>	<i>MB 280-210258/5</i>	21	<i>(FHT, 6666, II)</i>	31
2	<i>2/1</i> RD-100_012414_01 A	12	<i>2</i>	<i>-210412/5</i>	22		32
3	<i>2/3</i> TB RD-100_012414A	13	<i>3</i>	<i>-210619/7</i>	23	<i>(II)</i>	33
4	<i>2</i> RD-46A_012414_01	14			24		34
5	<i>2</i> TB RD-46A_012414	15			25		35
6	<i>2</i> RD-46B_012414_01	16			26		36
7	<i>2</i> RD-02_012414_01	17			27		37
8	<i>2</i> TB RD-02_012414	18			28		38
9	RD-02_012414_01MS	19			29		39
10	RD-02_012414_01MSD	20			30		40

## TARGET COMPOUND WORKSHEET

**METHOD: VOA**

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31361A1a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/24/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: EB

Associated Samples: 2 (MD)

Compound	<u>(EB)</u> Blank ID	FB	Sample Identification						
	1	FB_021214-19							
k	0.51	0.50							

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Spikes**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all surrogate %R within QC limits?  
Y N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications Code: <u>S</u>
		1	TOL	114 ( See below )	J dets / A (qual all except FFFF, GGGG, II)
		2	TOL	116 ( )	J dets / A ↓
		2	TOL	82 ( )	J / UJ / A (qual FFFF, GGGG, II)
			BFB	80 ( )	↓ ↓
		X X 7	TOL	118 ( )	J dets / A (qual QQQ, S)
		7	TOL	117 ( )	(qual all except QQQ, S)
		MB 280-210412/5	TOL	121 ( )	J dets / P (qual all)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

QC Limits (Water)

- SMC1 (TOL) = Toluene-d8
- SMC2 (BFB) = Bromofluorobenzene
- SMC3 (DCE) = 1,2-Dichloroethane-d4
- SMC4 (DFM) = Dibromofluoromethane

- 88-110
- 86-115
- 80-120
- 86-118

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates**

**METHOD :** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.
- N N/A Was a MS/MSD analyzed every 20 samples of each matrix?
- Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	9/10	I	74 (75-135)	( )	( )	7	J/MS/A (Q)
		H	59 (71-136)	( )	( )		
		TT	67 (71-135)	( )	( )		
		JJJ	74 (75-135)	( )	( )		
		SS	68 (70-135)	( )	( )		
		F	42 (50-156)	( )	( )		
		DD	74 (76-135)	( )	( )		✓
		QQQ	-763 (73-135)	-251 (73-135)	( )		No qual ✗
		R	65 (66-135)	( )	( )		J/MS/A (Q)
		PPP	33 (75-135)	62 (75-135)	( )		No qual ✗
		S	-512 (73-135)	-219 (73-135)	( )	✓	↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		✗ Parent Conc. >4x spike amt
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	< 22%	61-145%	< 14%
S.	Trichloroethene	62-137%	< 24%	71-120%	< 14%
V.	Benzene	66-142%	< 21%	76-127%	< 11%
CC.	Toluene	59-139%	< 21%	76-125%	< 13%
DD.	Chlorobenzene	60-133%	< 21%	75-130%	< 13%

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

RD-46A\_012414\_01  
TB\_RD-46A\_012414  
RD-46B\_012414\_01  
RD-02\_012414\_01  
TB\_RD-02\_012414  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-46A\_012414 and TB\_RD-02\_012414 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	RD-46A_012414_01 TB_RD-46A_012414 RD-46B_012414_01 RD-02_012414_01 TB_RD-02_012414	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A1b  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: F

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24 /14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS 10
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2, 5

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-46A_012414_01	11	MB 280-210274 /5	21		31	
2	TB_RD-46A_012414	12		22		32	
3	RD-46B_012414_01	13		23		33	
4	RD-02_012414_01	14		24		34	
5	TB_RD-02_012414	15		25		35	
6	RD-02_012414_01MS	16		26		36	
7	RD-02_012414_01MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

RD-46A\_012414\_01  
TB\_RD-46A\_012414  
RD-46B\_012414\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Sample TB\_RD-46A\_012414 was identified as a trip blank. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	RD-46A_012414_01 TB_RD-46A_012414 RD-46B_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A1c

**VALIDATION COMPLETENESS WORKSHEET**

Date: 5/03/14

SDG #: 280-51492-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: JVG

2nd Reviewer: *[Signature]***METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinstate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*Water*

+	1	RD-46A_012414_01	11	MB 440-158934/3	21	31
-	2	TB_RD-46A_012414	12		22	32
-	3	RD-46B_012414_01	13		23	33
	4		14		24	34
	5		15		25	35
	6		16		26	36
	7		17		27	37
	8		18		28	38
	9		19		29	39
	10		20		30	40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 11, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

EB\_RD-100\_012414  
RD-100\_012414\_01A  
RD-46A\_012414\_01  
RD-46B\_012414\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample EB\_RD-100\_012414 was identified as an equipment blank. No semivolatile contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No semivolatile contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	EB_RD-100_012414 RD-100_012414_01A RD-46A_012414_01 RD-46B_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A2a  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: JVL  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates / Split	N	S = 2, RD-100-012414-03 (4A127)
XVII.	Field blanks	ND	EB = 1 FB = FB-021214-09 (280-52081-1)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	EB_RD-100_012414	11	MB 280-210552 / 1-A	21		31	
2	RD-100_012414_01A	12		22		32	
3	RD-46A_012414_01	13		23		33	
4	RD-46B_012414_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Polynuclear Aromatic Hydrocarbons  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

PZ-091\_012414\_01  
RD-46A\_012414\_01  
RD-46B\_012414\_01  
RD-02\_012414\_01  
WS-04A\_012414\_01  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	PZ-091_012414_01 RD-46A_012414_01 RD-46B_012414_01 RD-02_012414_01 WS-04A_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A2b  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/23/14  
 Page: 1 of 1  
 Reviewer: NVG  
 2nd Reviewer: JN

**METHOD:** GC/MS <sup>PAH</sup> Semivolatiles (EPA SW846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS 1/2
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	EB =

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	PZ-091_012414_01	11	MB 280-210291/A	21		31
2	RD-46A_012414_01	12		22		32
3	RD-46B_012414_01	13		23		33
4	RD-02_012414_01	14		24		34
5	WS-04A_012414_01	15		25		35
6	RD-02_012414_01MS	16		26		36
7	RD-02_012414_01MSD	17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

RD-46A\_012414\_01  
RD-46B\_012414\_01  
RD-02\_012414\_01  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51492-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51492-1	RD-46A_012414_01 RD-46B_012414_01 RD-02_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A2c  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: JVG

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	NA	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-46A_012414_01	11	MB 280-210720/1-A	21		31	
2	RD-46B_012414_01	12		22		32	
3	RD-02_012414_01	13		23		33	
4	RD-02_012414_01MS	14		24		34	
5	RD-02_012414_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

EB\_RD-100\_012414  
RD-100\_012414\_01A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample EB\_RD-100\_012414 was identified as an equipment blank. No chlorinated pesticide contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No chlorinated pesticide contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	EB_RD-100_012414 RD-100_012414_01A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A3a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/03/14

SDG #: 280-51492-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: Jye

2nd Reviewer: **METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1 b
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates / Split	N	S = 2 + RD-100-012414-03A (14A122)
XVI.	Field blanks	ND	EB = 1 FB = FB-021214-19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	EB RD-100_012414	11	NB 280-210967/A	21		31	
2	RD-100_012414_01A	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

**Sample Identification**

PZ-091\_012414\_01  
RD-46A\_012414\_01  
RD-46B\_012414\_01  
RD-02\_012414\_01  
WS-04A\_012414\_01  
WS-05\_012414\_01  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No polychlorinated biphenyl contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	PZ-091_012414_01 RD-46A_012414_01 RD-46B_012414_01 RD-02_012414_01 WS-04A_012414_01 WS-05_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A3b

## VALIDATION COMPLETENESS WORKSHEET

Date: 3/07/14

SDG #: 280-51492-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: *NE*2nd Reviewer: *[Signature]*

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS 1p
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	FB_021214_19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*Water*

1	PZ-091_012414_01	11	<i>WB 280-210695/1-A</i>	21		31	
2	RD-46A_012414_01	12		22		32	
3	RD-46B_012414_01	13		23		33	
4	RD-02_012414_01	14		24		34	
5	WS-04A_012414_01	15		25		35	
6	WS-05_012414_01	16		26		36	
7	RD-02_012414_01MS	17		27		37	
8	RD-02_012414_01MSD	18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

EB\_RD-100\_012414  
RD-100\_012414\_01  
WS-04A\_012414\_01  
EB\_RD-100\_012414F  
RD-100\_012414\_01F  
WS-04A\_012414\_01F  
WS-05\_012414\_01F  
WS-04A\_012414\_01MS  
WS-04A\_012414\_01MSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Sodium, Strontium, Thallium, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Boron Molybdenum	0.00699 mg/L 0.000149 mg/L	WS-04A_012414_01
PB (prep blank)	Lithium	0.00541 mg/L	EB_RD-100_012414 RD-100_012414_01
PB (prep blank)	Antimony	0.000407 mg/L	EB_RD-100_012414 RD-100_012414_01 WS-04A_012414_01
PB (prep blank)	Zinc	0.00459 mg/L	WS-04A_012414_01F WS-05_012414_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB_RD-100_012414	Lithium	0.0034 mg/L	0.0034U mg/L

Samples EB\_RD-100\_012414 and EB\_RD-100\_012414F were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Lithium Magnesium Sodium Strontium	0.0034 mg/L 0.27 mg/L 3.1 mg/L 0.0021 mg/L	RD-100_012414_01
EB_RD-100_012414F	1/24/14	Sodium Strontium	0.24 mg/L 0.00036 mg/L	RD-100_012414_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Sodium	0.12 mg/L	RD-100_012414_01
FB_021214_19F	2/12/14	Magnesium Manganese Sodium Strontium	0.020 mg/L 0.00038 mg/L 0.13 mg/L 0.00030 mg/L	RD-100_012414_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

#### V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

#### VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For WS-04A\_012414\_01MS/MSD, no data were qualified for Manganese and Zinc percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

#### VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.



### **IX. Internal Standards (ICP-MS)**

Internal standards data were not reviewed for Level V.

### **X. Furnace Atomic Absorption QC**

Graphite furnace atomic absorption was not utilized in this SDG.

### **XI. ICP Serial Dilution**

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

### **XII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51492-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51492-1	EB_RD-100_012414 RD-100_012414_01 WS-04A_012414_01 EB_RD-100_012414F RD-100_012414_01F WS-04A_012414_01F WS-05_012414_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51492-1	EB_RD-100_012414	Lithium	0.0034U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A4  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2-26-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

METHOD: Metals (EPA SW 846 Method 6020A/7000) <sup>9M</sup> 6010B/6020/7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-24-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD Mn, Zn - 4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
<del>X.</del>	<del>Furnace Atomic Absorption QC</del>	<del>N</del>	<del>not utilized</del>
XI.	ICP Serial Dilution	A X	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	SW	EB = 1, 5

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

EB = FB = FB-021214-19 } SDG: 280-52081-1  
 EB = FB = FB-021214-19F }

1	EB_RD-100_012414	11		21		31	
2	RD-100_012414_01	12		22		32	
3	WS-04A_012414_01	13		23		33	
4	<del>WS-05_012414_01</del>	14		24		34	
5	EB_RD-100_012414F	15		25		35	
6	RD-100_012414_01F	16		26		36	
7	WS-04A_012414_01F	17		27		37	
8	WS-05_012414_01F	18		28		38	
9	WS-04A_012414_01MS	19		29	PBW1	39	
10	WS-04A_012414_01MSD	20		30	PBW2	40	

Notes: Samples appended with "F" were analyzed as dissolved

VALIDATION FINDINGS WORKSHEET  
Sample Specific Element Reference

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1, 2, 5, 6	W	Al, <u>Sb</u> , <u>As</u> , <u>Ba</u> , Be, Cd, Ca, Cr, <u>Co</u> , <u>Cu</u> , Fe, Pb, <u>Mg</u> , <u>Mn</u> , Hg, Ni, K, Se, Ag, <u>Na</u> , Ti, V, Zn, Mo, B, Si,
3, 7		Al, <u>Sb</u> , <u>As</u> , <u>Ba</u> , <u>Be</u> , <u>Cd</u> , <u>Ca</u> , <u>Cr</u> , <u>Co</u> , <u>Cu</u> , <u>Fe</u> , <u>Pb</u> , <u>Mg</u> , <u>Mn</u> , <u>Hg</u> , <u>Ni</u> , K, <u>Se</u> , <u>Ag</u> , <u>Na</u> , <u>Ti</u> , <u>V</u> , <u>Zn</u> , <u>Mo</u> , <u>B</u> , Si,
8		Al, <u>Sb</u> , <u>As</u> , <u>Ba</u> , <u>Be</u> , <u>Cd</u> , <u>Ca</u> , <u>Cr</u> , <u>Co</u> , <u>Cu</u> , <u>Fe</u> , <u>Pb</u> , <u>Mg</u> , <u>Mn</u> , <u>Hg</u> , <u>Ni</u> , K, <u>Se</u> , <u>Ag</u> , <u>Na</u> , <u>Ti</u> , <u>V</u> , <u>Zn</u> , <u>Mo</u> , <u>B</u> , Si,
QC 9, 10		Al, <u>Sb</u> , <u>As</u> , <u>Ba</u> , <u>Be</u> , <u>Cd</u> , <u>Ca</u> , <u>Cr</u> , <u>Co</u> , <u>Cu</u> , <u>Fe</u> , <u>Pb</u> , <u>Mg</u> , <u>Mn</u> , <u>Hg</u> , <u>Ni</u> , K, <u>Se</u> , <u>Ag</u> , <u>Na</u> , <u>Ti</u> , <u>V</u> , <u>Zn</u> , <u>Mo</u> , B, Si, <u>Sr</u>
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si,
1, 2, 5, 6		Nb, Pd, <u>P</u> , Pt, Sn, <u>Sr</u> , <u>Ti</u> , <u>W</u> , <u>U</u> , <u>Li</u> , <u>S</u> , <u>Zr</u>
3, 7		Nb, Pd, P, Pt, <u>Sn</u> , Sr, Ti, W, U, Li, S, Zr,
QC 9, 10	↓	Nb, Pd, P, Pt, <u>Sn</u> , Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
		Nb, Pd, P, Pt, Sn, Sr, Ti, W, U, Li, S, Zr,
Analysis Method		
ICP	W	<u>Li</u> , <u>S</u> , <u>B</u> , <u>Fe</u> , <u>Mg</u> , <u>P</u> , <u>Na</u> , <u>Sr</u> , <u>Ti</u> , <u>Zr</u>
ICP-MS	↓	Al, <u>Sb</u> , <u>As</u> , <u>Ba</u> , <u>Be</u> , <u>Cd</u> , <u>Ca</u> , <u>Cr</u> , <u>Co</u> , <u>Cu</u> , <u>Fe</u> , <u>Pb</u> , <u>Mg</u> , <u>Mn</u> , <u>Ni</u> , K, <u>Se</u> , <u>Ag</u> , <u>Na</u> , <u>Ti</u> , <u>V</u> , <u>Zn</u> , <u>Mo</u> , B, Si,
ICP-MS	↓	Nb, Pd, P, Pt, <u>Sn</u> , Sr, Ti, W, U, Zr,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN

Comments: Mercury by CVAA if performed  
Nb: Niobium, Pd: Palladium, P: Phosphorus, Pt: Platinum, S: Sulfur, W: Tungsten, U: Uranium, Zr: Zirconium

LDC #: 31361A4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 3 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: R

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.										
B		0.00699		0.0350											
Mo		0.000149		0.00074											

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1,2 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1										
Li		0.00541		0.0270	0.0034										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-3 (ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.										
Sb		0.000407		0.0020											

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 7,8 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.										
Zn		0.00459		0.0230											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

**N/A** Were field blanks identified in this SDG?

**N/A** Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate Other EB Associated Samples: 2 (>5x)

Analyte	Blank ID	Blank ID	Sample Identification													
	FB_021214 _19 sampled: 2/12/14	1 sampled: 1/24/14	Action Level	No Qual's.												
Li		0.0034	0.0170													
Mg		0.27	1.35													
Na	0.12	3.1	15.5													
Sr		0.0021	0.0105													

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate Other EB Associated Samples: 6 (>5x)

Analyte	Blank ID	Blank ID	Sample Identification													
	FB_021214 _19F sampled: 2/12/14	5 sampled: 1/24/14	Action Level	No Qual's.												
Mg	0.020		0.100													
Mn	0.00038		0.0019													
Na	0.13	0.24	1.20													
Sr	0.00030	0.00036	0.0018													

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 12, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

**Sample Identification**

EB\_RD-100\_012414  
RD-100\_012414\_01A  
PZ-091\_012414\_01  
RD-46A\_012414\_01  
RD-46B\_012414\_01  
EB\_RD-100\_012414MS  
EB\_RD-100\_012414MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Chloride, Fluoride, Nitrate as Nitrogen, Nitrite, and Sulfate, EPA SW 846 Method 7196A for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, and EPA SW 846 Method 9012A for Cyanide.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-07\_020714 (from SDG 280-51958-1), EB\_RD-109\_021014 (from SDG 280-51987-1), and EB\_RD-100\_012414 were identified as equipment blanks. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Sulfate	0.42 mg/L	RD-100_012414_01A PZ-091_012414_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Sulfate	0.77 mg/L	RD-100_012414_01A PZ-091_012414_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51492-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-100\_012414\_01A and RD-100\_012414\_03A (from SDG 14A122) were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-100_012414_01A	RD-100_012414_03A			
Sulfate	640	611	5 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51492-1	EB_RD-100_012414 RD-100_012414_01A PZ-091_012414_01 RD-46A_012414_01 RD-46B_012414_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A6  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

9MA Level V

Date: 2-27-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

Cyanide (EPA SW846 Method 9012A)

**METHOD:** Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate-N, Nitrite, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-24-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS / LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	split = 2 + RD-100_012414_03A (SDG: 14A122)
XI	Field blanks	SW	EB=1, EB= EB-RD-07_020714* (SDG: 280-51958-)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB = EB-RD-109\_021014\* (SDG: 280-51987-1)  
 FB = FB-021214-19 (SDG: 280-52081-1)

Validated Samples:  
 all water

1	EB_RD-100_012414	11		21		31	
2	RD-100_012414_01A	12		22		32	
3	PZ-091_012414_01	13		23		33	
4	RD-46A_012414_01	14		24		34	
5	RD-46B_012414_01	15		25		35	
6	EB_RD-100_012414MS	16		26		36	
7	EB_RD-100_012414MSD	17		27		37	
8		18		28		38	
9		19		29	PBW1	39	
10		20		30	PBW2	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Inorganics, EPA Method See Cover

N N/A Were field blanks identified in this SDG?  
 N N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / ~~Other~~: EB Associated Samples: 2,3 (>5x)

Analyte	Blank ID	Blank ID	Action Limit	Sample Identification							
	FB_021214_19 sampled: 2/12/14	1 sampled: 1/24/14		No Qual's.							
SO4	0.77	0.42	3.85								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC: 31361A6

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Page: 1 of 1

Reviewer: MG

Method: Inorganics (see cover)

2nd Reviewer: 

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	2	RD-100_012414_03A		
Sulfate	640	611	5	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

RD-46A\_012414\_01  
RD-46B\_012414\_01  
WS-04A\_012414\_01



## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	RD-46A_012414_01 RD-46B_012414_01 WS-04A_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A8  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: JV  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/28/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	<u>CS</u>
VII.	Laboratory control samples	A	<u>LCE D</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-46A_012414_01	11	<u>MB 286 - 210284 / 1-B</u>	21		31	
2	RD-46B_012414_01	12		22		32	
3	WS-04A_012414_01	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Explosives

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

**Sample Identification**

EB\_RD-100\_012414  
RD-100\_012414\_01A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330A for Explosives.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks.

Sample EB\_RD-100\_012414 was identified as an equipment blank. No explosive contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No explosive contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-100\_012414\_01A and RD-100\_012414\_03A (from SDG 14A122) were identified as split samples. No explosives were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	EB_RD-100_012414 RD-100_012414_01A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A40  
 SDG #: 280-51492-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Explosives (EPA SW 846 Method 8330A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/24/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	SW	LC3 D
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates <u>(split)</u>	ND	S = 2 + RD-100-012414-03A (14 A122)
XIII.	Field blanks	MD	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	EB_RD-100_012414	11	MB 280-210136/1-A	21		31	
2	RD-100_012414_01	12	✓ -210578/1-A	22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 24, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** Formaldehyde  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

RD-46A\_012414\_01  
RD-46B\_012414\_01  
RD-02\_012414\_01  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	RD-46A_012414_01 RD-46B_012414_01 RD-02_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG



LDC #: 31361A71  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: *MB*  
 2nd Reviewer: *[Signature]*

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*Water*

1	RD-46A_012414_01	11	<i>MB 240-117688/12-A</i>	21		31	
2	RD-46B_012414_01	12		22		32	
3	RD-02_012414_01	13		23		33	
4	RD-02_012414_01MS	14		24		34	
5	RD-02_012414_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

RD-46A\_012414\_01  
RD-46B\_012414\_01  
RD-02\_012414\_01  
RD-02\_012414\_01MS  
RD-02\_012414\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

.

Sample	Finding	Flag	A or P
All samples in SDG 280-51492-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51492-1	RD-46A_012414_01 RD-46B_012414_01 RD-02_012414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A76  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/03/14  
 Page: 1 of 1  
 Reviewer: SVG  
 2nd Reviewer: [Signature]

SOP DV-WC-0077

**METHOD:** HPLC Hydrazines (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/24/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	<u>LCS 10</u>
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-46A_012414_01	11	<u>MB 280-210954/25</u>	21		31	
2	RD-46B_012414_01	12		22		32	
3	RD-02_012414_01	13		23		33	
4	RD-02_012414_01MS	14		24		34	
5	RD-02_012414_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

### Sample Identification

PZ-091\_012414\_01

WS-04A\_012414\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No perchlorate was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No perchlorate was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All analytes reported below the RL and above the MDL were qualified as follows:

<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51492-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51492-1**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51492-1	PZ-091_012414_01 WS-04A_012414_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A87

# VALIDATION COMPLETENESS WORKSHEET

Date: 3/6/14

SDG #: 280-51492-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVC

2nd Reviewer: [Signature]

METHOD: LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	FB = FB_021214_19 (280-52081-1) EB = EB_RD-02_020714 (280-51958-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

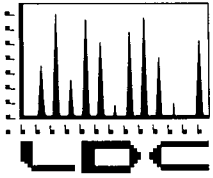
ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	PZ-091_012414_01	11	<del>MP 440-158908/5</del>	21		31	
2	WS-04A_012414_01	12	<del>159211/5</del>	22		32	
3		13	MP 280-211148/5	23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

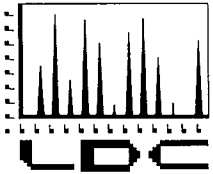
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31361:

<u>SDG #</u>	<u>Fraction</u>
280-51492-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51541-1/H4A290411	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51587-1/H4A300416	Nitrosodimethylamine, Chlorinated Pesticides,
280-51632-1	Polychlorinated Biphenyls, Metals, Wet Chemistry, Total
280-51633-1/H3B030412	Petroleum Hydrocarbons as Extractables, Explosives,
280-51670-1/H4B030402	Formaldehyde, Hydrazines, Perchlorate,
280-51767-1/H4B060406	Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng for'.

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51541-1/H4A290411

**Sample Identification**

RD-08\_012714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4031036MB	2/2/14	OCDD OCDF	1.6 pg/L 1.6 pg/L	All samples in SDG 280-51541-1/ H4A290411

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

**VIII. Regional Quality Assurance and Quality Control**

Not applicable.

**IX. Internal Standards**

Internal standards data were not reviewed for Level II.

**X. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XI. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51767-1/ H4B060406	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XII. System Performance**

Raw data were not reviewed for this SDG.

**XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XIV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51541-1/H4A290411**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51541-1/ H4A290411	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51541-1/H4A290411**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51541-1/H4A290411**

No Sample Data Qualified in this SDG

LDC #: 31361B21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/04/14

SDG #: 280-51541-1/H4A290411

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVG

2nd Reviewer: J

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	C.S
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	N	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Water

1	RD-08_012714_01	11	4031036 MB	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



LDC #: 31361321

## VALIDATION FINDINGS WORKSHEET

### Blanks

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Were all samples associated with a method blank?
- Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
- Y N N/A Was the method blank contaminated?

Blank extraction date: 2/02/14      Blank analysis date: 2/09/14

Associated samples: All (ND)

Conc. units: pg/L

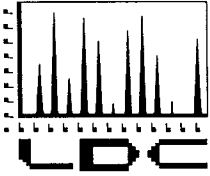
Compound	Blank ID	Sample Identification							
	4031036 MB								
G	1.6 *								
Q	1.6 *								

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_ \* EMPC

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

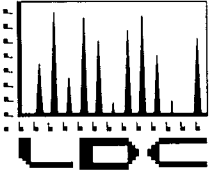
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31361:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51492-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51541-1/H4A290411	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51587-1/H4A300416	Nitrosodimethylamine, Chlorinated Pesticides,
280-51632-1	Polychlorinated Biphenyls, Metals, Wet Chemistry, Total
280-51633-1/H3B030412	Petroleum Hydrocarbons as Extractables, Explosives,
280-51670-1/H4B030402	Formaldehyde, Hydrazines, Perchlorate,
280-51767-1/H4B060406	Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 28, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Dioxins/Dibenzofurans  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51587-1/H4A300416

**Sample Identification**

RD-38B\_012814\_01  
RD-36B\_012814\_01  
RD-36C\_012814\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4031036MB	2/2/14	OCDD OCDF	1.6 pg/L 1.6 pg/L	All samples in SDG 280-51587-1/ H4A300416

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-36B_012814_01	OCDD	0.81 pg/L	0.81U pg/L

No field blanks were identified in this SDG.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Regional Quality Assurance and Quality Control

Not applicable.

## IX. Internal Standards

Internal standards data were not reviewed for Level II.

## X. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51767-1/ H4B060406	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. System Performance

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51587-1/H4A300416**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51587-1/ H4A300416	RD-38B_012814_01 RD-36B_012814_01 RD-36C_012814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51587-1/H4A300416**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51587-1/ H4A300416	RD-36B_012814_01	OCDD	0.81U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51587-1/H4A300416**

No Sample Data Qualified in this SDG

LDC #: 31361C21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 1/28/14

SDG #: 280-51587-1/H4A300416

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JG

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/28/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	N	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

1	RD-36B_012814_01	11		21	31
2	RD-36B_012814_01	12		22	32
3	RD-36C_012814_01	13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Notes:

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## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LDC #: 3/361 C21

### VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1  
Reviewer: JY6  
2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Were all samples associated with a method blank?
- Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
- Y N N/A Was the method blank contaminated?

Blank extraction date: 2/02/14 Blank analysis date: 2/04/14

Associated samples: A11 (B)

Conc. units: pg/L

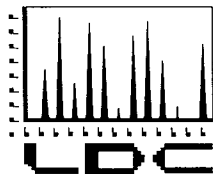
Compound	Blank ID	Sample Identification							
	4031036 MB		2						
G	1.6 *		0.81*/u						
Q	1.6 *								

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_ \* EMPC

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

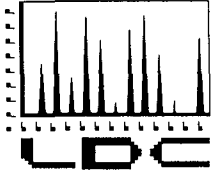
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31361:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51492-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51541-1/H4A290411	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51587-1/H4A300416	Nitrosodimethylamine, Chlorinated Pesticides,
280-51632-1	Polychlorinated Biphenyls, Metals, Wet Chemistry, Total
280-51633-1/H3B030412	Petroleum Hydrocarbons as Extractables, Explosives,
280-51670-1/H4B030402	Formaldehyde, Hydrazines, Perchlorate,
280-51767-1/H4B060406	Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
TB\_RD-11\_012914  
RD-12\_012914\_01  
HAR-16\_012914\_01  
TB\_HAR-16\_012914  
RD-78\_012914\_01  
TB\_RD-78\_012914  
WS-14\_012914\_01  
RD-11\_012914\_01MS  
RD-11\_012914\_01MSD  
HAR-16\_012914\_01MS  
HAR-16\_012914\_01MSD



## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_RD-11\_012914, TB\_HAR-16\_012914, and TB\_RD-78\_012914 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_HAR-16_012914	1/29/14	Acetone	2.4 ug/L	HAR-16_012914_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-11_012914_01	1,2-Dichloroethane-d4	123 (80-120)	All TCL compounds except Acrolein Acrylonitrile	J (all detects)	A

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TB_RD-11_012914	1,2-Dichloroethane-d4	125 (80-120)	All TCL compounds except Acrolein Acrylonitrile	J (all detects)	A
RD-12_012914_01	1,2-Dichloroethane-d4	126 (80-120)	Acrolein Acrylonitrile	J (all detects) J (all detects)	A
TB_HAR-16_012914	1,2-Dichloroethane-d4	125 (80-120)	Acrolein Acrylonitrile	J (all detects) J (all detects)	A
RD-78_012914_01	1,2-Dichloroethane-d4	122 (80-120)	All TCL compounds	J (all detects)	A
TB_RD-78_012914	Bromofluorobenzene	83 (86-115)	All TCL compounds	J (all detects) UJ (all non-detects)	P
WS-14_012914_01	1,2-Dichloroethane-d4	122 (80-120)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were not within QC limits. Since the sample concentration was greater than the spiked concentration, no data were qualified.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

### XIV. System Performance

Raw data were not reviewed for this SDG.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No volatiles were detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) and samples HAR-16\_012914\_01 and HAR-16\_012914\_03DL (from SDG 14A148) were identified as split samples. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
1,1,2-Trichloroethane	20U	0.51	190 ( $\leq 35$ )	NQ	-
1,1-Dichloroethane	20U	0.95	182 ( $\leq 35$ )	NQ	-
1,1-Dichloroethene	7.4	9.5	25 ( $\leq 35$ )	-	-
Carbon tetrachloride	20U	0.24	195 ( $\leq 35$ )	NQ	-
Chloroform	20U	2.0	164 ( $\leq 35$ )	NQ	-
cis-1,2-Dichloroethene	53	57	7 ( $\leq 35$ )	-	-
Tetrachloroethene	20U	4.4	128 ( $\leq 35$ )	NQ	-
trans-1,2-Dichloroethene	20U	0.41	192 ( $\leq 35$ )	NQ	-

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Trichloroethene	2700	710	117 (≤35)	J (all detects)	A
Trichlorofluoromethane	20U	9.3	73 (≤35)	NQ	-
1,1,2-Trichloro-1,2,2-trifluoroethane	100U	1.1	196 (≤35)	NQ	-

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03DL			
cis-1,2-Dichloroethene	53	65	20 (≤35)	-	-
Trichloroethene	2700	4000	39 (≤35)	J (all detects)	A

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 TB_RD-11_012914	All TCL compounds except Acrolein Acrylonitrile	J (all detects)	A	Surrogate spikes (%R) (S)
280-51632-1	RD-12_012914_01 TB_HAR-16_012914	Acrolein Acrylonitrile	J (all detects) J (all detects)	A	Surrogate spikes (%R) (S)
280-51632-1	RD-78_012914_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51632-1	TB_RD-78_012914	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
280-51632-1	WS-14_012914_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51632-1	RD-11_012914_01 RD-11_012914_36 TB_RD-11_012914 RD-12_012914_01 HAR-16_012914_01 TB_HAR-16_012914 RD-78_012914_01 TB_RD-78_012914 WS-14_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)
280-51632-1	HAR-16_012914_01	Trichloroethene	J (all detects)	A	Field duplicates (RPD) (*XIV)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D1a  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/04/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / Split	SW <del>EB</del>	*D = 1, 2 S = 5, HAR-16_012914_03
XVII.	Field blanks	SW	TB = *3, 6, 8* (14A148) S <sub>2</sub> = 5, ↓ DL

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	RD-11_012914_01MSD	21	MB 280-210855/6	31	(FFF, GGG)
2	RD-11_012914_36	12	HAR-16_012914_01MS	22	↓ -21,708/5	32	
3	TB RD-11_012914	13	HAR-16_012914_01MSD	23		33	
4	RD-12_012914_01	14		24		34	
5	HAR-16_012914_01	15		25		35	
6	TB HAR-16_012914	16		26		36	
7	RD-78_012914_01	17		27		37	
8	TB RD-78_012914	18		28		38	
9	WS-14_012914_01	19		29		39	
10	RD-11_012914_01MS	20		30		40	

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.



LDC #: 3/36/14 DIC

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 1/29/14

Field blank type: (circle one) Field Blank / Rinsate / (Trip Blank) / Other: \_\_\_\_\_ Associated Samples: X, 5 (MD)

Compound	Blank ID	Sample Identification							
	6								
F	2.4								

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31361 DIA

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Spikes**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all surrogate %R within QC limits?

Y (N) N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)		Qualifications Code: <u>S</u>
		1	DCE	123	( 80-120 )	J dete / A (all except FFFF, GGGG)
		3		125	( )	↓
		4		126	( )	(qual FFFF, GGGG)
		6		125	( )	↓
		7	↓	122	( )	↓ (qual all)
		8	BFB	83	( 86-115 )	J/US/P &
		9	DCE	122	( 80-120 )	J dete / P ↓
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	

QC Limits (Water)

SMC1 (TOL) = Toluene-d8  
SMC2 (BFB) = Bromofluorobenzene  
SMC3 (DCE) = 1,2-Dichloroethane-d4  
SMC4 (DFM) = Dibromofluoromethane

88-110  
86-115  
80-120  
86-118



Field Splits

Reviewer: JVG

2nd Reviewer: 

Method: GCMS VOA (EPA SW 846 Method 8260B)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	HAR-16_012914_01	HAR-16_012914_03		
U	20U	0.51	190	NQ (<5xRL)
I	20U	0.95	182	NQ (<5xRL)
H	7.4	9.5	25	
O	20U	0.24	195	NQ (<5xRL)
K	20U	2.0	164	NQ (<5xRL)
QQQ	53	57	7	
AA	20U	4.4	128	NQ (<5xRL)
PPP	20U	0.41	192	NQ (<5xRL)
S	2700	710	117	Jdets/A (*#)
KK	20U	9.3	73	NQ (<5xRL)
TTT	100U	1.1	196	NQ (<5xRL)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	HAR-16_012914_01	HAR-16_012914_03DL		
QQQ	53	65	20	
S	2700	4000	39	Jdets/A (*#)

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** 1,4-Dioxane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
TB\_RD-11\_012914  
RD-12\_012914\_01  
HAR-16\_012914\_01  
TB\_HAR-16\_012914  
RD-78\_012914\_01  
TB\_RD-78\_012914

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-11\_012914, TB\_HAR-16\_012914, and TB\_RD-78\_012914 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No 1,4-dioxane was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
1,4-Dioxane	8.0	8.8	10 (≤35)	-	-



**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 TB_RD-11_012914 RD-12_012914_01 HAR-16_012914_01 TB_HAR-16_012914 RD-78_012914_01 TB_RD-78_012914	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D1b  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/29/14  
 Page: 1 of 1  
 Reviewer: JVC  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	UCS 1/5
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / Split	SWB	* D = 1, 2 S = 5, HAR-16_012914_03
XVII.	Field blanks	ND	TB = 3, 6, 8 (14A-148)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	MB 280-211718/5	21		31
2	RD-11_012914_36	12	↓ - 211944/5	22		32
3	TB_RD-11_012914	13		23		33
4	RD-12_012914_01	14		24		34
5	HAR-16_012914_01	15		25		35
6	TB_HAR-16_012914	16		26		36
7	RD-78_012914_01	17		27		37
8	TB_RD-78_012914	18		28		38
9		19		29		39
10		20		30		40

LDC #: 31361 D1b

### VALIDATION FINDINGS WORKSHEET

Field Duplicates / Split

Page: 1 of 1

Reviewer: JVG

2nd reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A  
Y N N/A

Were field duplicate pairs identified in this SDG?

Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( <u>ug/L</u> )		RPD ( <u>535</u> %)	Qualifications (Parent only)
	<u>5</u>	<u>HAR-16_012914_03</u>		
<u>1,4-Dioxane</u>	<u>8.0</u>	<u>8.8</u>	<u>10</u>	

Compound	Concentration ( )		RPD ( <u>≤</u> %)	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( <u>≤</u> %)	Qualifications (Parent only)

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** 1,2,3-Trichloropropane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
TB\_RD-11\_012914  
RD-12\_012914\_01  
HAR-16\_012914\_01  
TB\_HAR-16\_012914  
RD-78\_012914\_01  
TB\_RD-78\_012914

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Samples TB\_RD-11\_012914, TB\_HAR-16\_012914, and TB\_RD-78\_012914 were identified as trip blanks. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No 1,2,3-trichloropropane was detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
1,2,3-Trichloropropane	0.0043	0.0051	17 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 TB_RD-11_012914 RD-12_012914_01 HAR-16_012914_01 TB_HAR-16_012914 RD-78_012914_01 TB_RD-78_012914	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG





## TARGET COMPOUND WORKSHEET

**METHOD: VOA**

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**  
**Field Splits**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A  
Y N N/A

Were field split pairs identified in this SDG?

Were target compounds detected in the field split pairs?

Compound	Concentration (ug/L)		RPD (≤ 35%)	Qualifications (Parent only)
	5	HAR-16-012914-03		
XX	0.0043	0.0051	17	

Compound	Concentration ( )		RPD (≤ 35%)	Qualifications (Parent only)

Compound	Concentration ( )		RPD (≤ 35%)	Qualifications (Parent only)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-11_012914_01	RD-11_012914_36			
Diethylphthalate	1.3	1.3	0 ( $\leq 35$ )	-	-

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
N-Nitrosodimethylamine	7.0	6.1	14 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG



LDC #: 31361D2a  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/04/14  
 Page: 1 of 1  
 Reviewer: JVC  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates / Split	SW	D = 1, 2 S = 4, HAR-16-012914-03
XVII.	Field blanks	N	(14A148)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	MB 280-210998/1A	21		31	
2	RD-11_012914_36	12		22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

- Y  N  N/A Were field duplicate pairs identified in this SDG?
- Y  N  N/A Were target compounds identified in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤ 35%)	Qualifications (Parent only)
	1	2		
LL	1.3	1.3	0	

SPLIT

Compound	Concentration (ug/L)		RPD (≤ 35%)	Qualifications (Parent only)
	4	HAR-16_012919_03		
000	7.0	6.1	14	

Compound	Concentration ( )		RPD (≤ %)	Qualifications (Parent only)

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-78\_012914\_01  
WS-14\_012914\_01  
PZ-029\_012914\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-211082/1-A	2/3/14	Diethylphthalate	0.0626 ug/L	RD-78_012914_01 PZ-029_012914_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
PZ-029_012914_01	Diethylphthalate	0.16 ug/L	9.7U ug/L

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No semivolatile contaminants were found.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason
280-51632-1	RD-78_012914_01 WS-14_012914_01 PZ-029_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P	Code
280-51632-1	PZ-029_012914_01	Diethylphthalate	9.7U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D2b  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/04/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS B
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	MD	FB = FB_021214-19 (280-52081-1)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-78_012914_01	T1	MB 280-211082 /-A	21		31	
2	WS-14_012914_01	12		22		32	
3	PZ-029_012914_01	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

PAH + Phthalates - 1, 3  
 PAH - 2

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 31361 D26

### VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: [Signature]

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A Was a method blank analyzed for each matrix?  
 Y  N  N/A Was a method blank analyzed for each concentration preparation level?  
 Y  N  N/A Was a method blank associated with every sample?  
 Y  N  N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 2/07/14 Blank analysis date: 2/06/13

Conc. units: ug/L

Associated Samples: AH 1 3 (B)

Compound	Blank ID								
	<u>MB 280-211082/1-A</u>	<u>3</u>							
<u>LL</u>	<u>0.0626</u>	<u>0.16/9.7U</u>							

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
RD-78\_012914\_01

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No N-nitrosodimethylamine was detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No N-nitrosodimethylamine was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
N-Nitrosodimethylamine	8.5	9.876	15 (≤35)	-	-



**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 RD-78_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D2c  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/04/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

SW 846 Method 8270D-S/M)

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	VCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates / Split	<del>SW</del>	D = 1, 2      S = 4 + HAR-16_012914-03
XVII.	Field blanks	N	(14A148)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	MB 280-211146/1-A	21		31	
2	RD-11_012914_36	12		22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5	RD-78_012914_01	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**VALIDATION FINDINGS WORKSHEET**  
**Field Splits**

**METHOD:** GC/MS SVOA (EPA SW 846 Method 8270D-SIM) 16250

Y  N  N/A  
 Y  N  N/A

Were field split pairs identified in this SDG?  
 Were target compounds detected in the field split pairs?

Compound	Concentration ( $\mu\text{g/L}$ )		RPD ( $\leq 35\%$ )	Qualifications (Parent only)
	4	HAR-16-012919-03		
NDMA	8.5	9.876	15	

Compound	Concentration ( )		RPD ( $\leq 35\%$ )	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( $\leq 35\%$ )	Qualifications (Parent only)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Pentachlorophenol

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C-Low level for Pentachlorophenol.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No pentachlorophenol was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No pentachlorophenol was detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No pentachlorophenol was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Pentachlorophenol - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Pentachlorophenol - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Pentachlorophenol - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG



**METHOD:** GC/MS Pentachlorophenol (EPA SW846 Method 8270C LL)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS (D)
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / Split	ND	D = 1, 2 S = 4, HAR-16-612914-03
XVII.	Field blanks	N	(14A148)

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	MB 280 210776/LA	21		31	
2	RD-11_012914_36	12		22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
WS-14\_012914\_01

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No chlorinated pesticides were detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No chlorinated pesticides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 WS-14_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D3a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/04/14

SDG #: 280-51632-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: SVG2nd Reviewer: f**METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 10
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates / Split	ND	D = 1, 2      S = 4, HAR-16-012914-03 (14A148)
XVI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

		Water			
1	RD-11_012914_01	11	MB 280-210967/LA	21	31
2	RD-11_012914_36	12		22	32
3	RD-12_012914_01	13		23	33
4	HAR-16_012914_01	14		24	34
5	WS-14_012914_01	15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** Polychlorinated Biphenyls  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
RD-78\_012914\_01  
RD-72\_012914\_01



## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No polychlorinated biphenyls were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 RD-78_012914_01 RD-72_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D3b  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/04/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/29/14</u>
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	<u>LCS 1/2</u>
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates <u>1 Split</u>	<u>ND</u>	<u>D = 1, 2      S = 4, HAR-16-012914-03</u>
XVI.	Field blanks	N	<u>(14A148)</u>

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	<u>MB 280-211198/1-A</u>	21		31	
2	RD-11_012914_36	12		22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5	RD-78_012914_01	15		25		35	
6	RD-72_012914_01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
RD-78\_012914\_01  
WS-14\_012914\_01  
PZ-029\_012914\_01  
RD-72\_012914\_01  
RD-11\_012914\_01F  
RD-11\_012914\_36F  
RD-12\_012914\_01F  
HAR-16\_012914\_01F  
RD-78\_012914\_01F  
WS-14\_012914\_01F  
PZ-029\_012914\_01F  
RD-72\_012914\_01F  
WS-14\_012914\_01MS  
WS-14\_012914\_01MSD  
HAR-16\_012914\_01FMS  
HAR-16\_012914\_01FMDS

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 20 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Magnesium	0.0139 mg/L	HAR-16_012914_01F RD-78_012914_01F WS-14_012914_01F
PB (prep blank)	Boron	0.00686 mg/L	WS-14_012914_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
WS-14_012914_01F	Boron	0.031 mg/L	0.031U mg/L

Samples EB\_RD-100\_012414, EB\_RD-100\_012414F (both from SDG 280-51492-1), EB\_RD-07\_020714, and EB\_RD-07\_020714F (both from SDG 280-51958-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:



Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Zinc	0.00044 mg/L 0.00061 mg/L 0.0028 mg/L	PZ-029_012914_01
EB_RD-07_020714F	2/7/14	Antimony Zinc	0.00045 mg/L 0.0026 mg/L	PZ-029_012914_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
PZ-029_012914_01	Chromium Zinc	0.00052 mg/L 0.0066 mg/L	0.00052U mg/L 0.0066U mg/L
PZ-029_012914_01F	Zinc	0.0087 mg/L	0.0087U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

## XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51632-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36, and samples RD-11\_012914\_01F and RD-11\_012914\_36F were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-11_012914_01	RD-11_012914_36			
Barium	0.020	0.020	0 (≤35)	-	-
Nickel	0.00074	0.00074	0 (≤35)	-	-
Zinc	0.0028	0.0028	0 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-11_012914_01F	RD-11_012914_36F			
Barium	0.020	0.020	0 (≤35)	-	-
Lead	0.00021	0.00018U	15 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-11_012914_01F	RD-11_012914_36F			
Nickel	0.00067	0.00047	35 (≤35)	-	-
Zinc	0.0040	0.0023	54 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG14A148) and samples HAR-16\_012914\_01F and HAR-16\_012914\_03F (from SDG 14A148) were identified as split samples. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Arsenic	0.00057	0.000549	4 (≤35)	-	-
Barium	0.017	0.0168	1 (≤35)	-	-
Calcium	45	46.4	3 (≤35)	-	-
Chromium	0.00050U	0.000251	66 (≤35)	NQ	-
Cobalt	0.000059	0.000200U	109 (≤35)	NQ	-
Iron	0.18	0.0811	76 (≤35)	NQ	-
Magnesium	10	8.43	17 (≤35)	-	-
Manganese	0.0028	0.00140	67 (≤35)	NQ	-
Nickel	0.00088	0.000669	27 (≤35)	-	-
Potassium	1.3	0.986	27 (≤35)	-	-
Selenium	0.0012	0.00127	6 (≤35)	-	-
Sodium	58	48.4	18 (≤35)	-	-
Strontium	0.21	0.199	5 (≤35)	-	-
Vanadium	0.0013	0.00130	0 (≤35)	-	-
Zinc	0.058	0.0568	2 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01F	HAR-16_012914_03F			
Arsenic	0.00059	0.000594	1 (≤35)	-	-
Barium	0.018	0.0166	8 (≤35)	-	-
Calcium	47	46.4	1 (≤35)	-	-
Magnesium	9.7	8.52	13 (≤35)	-	-
Manganese	0.00049	0.000234	71 (≤35)	NQ	-
Nickel	0.0012	0.000683	55 (≤35)	NQ	-
Potassium	1.2	1.02	16 (≤35)	-	-
Selenium	0.0014	0.00127	10 (≤35)	-	-
Sodium	54	47.4	13 (≤35)	-	-
Strontium	0.20	0.197	2 (≤35)	-	-
Vanadium	0.0012	0.00118	2 (≤35)	-	-
Zinc	0.064	0.0550	15 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 RD-78_012914_01 WS-14_012914_01 PZ-029_012914_01 RD-72_012914_01 RD-11_012914_01F RD-11_012914_36F RD-12_012914_01F HAR-16_012914_01F RD-78_012914_01F WS-14_012914_01F PZ-029_012914_01F RD-72_012914_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51632-1	WS-14_012914_01F	Boron	0.031U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51632-1	PZ-029_012914_01	Chromium Zinc	0.00052U mg/L 0.0066U mg/L	A	F
280-51632-1	PZ-029_012914_01F	Zinc	0.0087U mg/L	A	F

LDC #: 31361D4  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 2-27-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

9MG

**METHOD:** Metals (EPA SW 846 Method 6020A/7000) 6010B / 6020 / 7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	not utilized
XI.	ICP Serial Dilution	A ✓	
XII.	Sample Result Verification	N	{ split = 4 + HAR-16-012914-03 (SDG: 14A148)
XIII.	Overall Assessment of Data	A	{ split = 12 + HAR-16-012914-03 F ( ↓ )
XIV.	Field Duplicates	SW	{ D = 1 + 2, D = 9 + 10
XV.	Field Blanks	SW	EB = EB-RD-100-012414* (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

EB = EB-RD-100-012414F\* (SDG: 280-51492-1)  
 FB = FB-021214-19\* (SDG: 280-52081-1)  
 FB = FB-021214-19F\* ( ↓ )

1	RD-11_012914_01	11	RD-12_012914_01F	21		31	
2	RD-11_012914_36	12	HAR-16_012914_01F	22		32	
3	RD-12_012914_01	13	RD-78_012914_01F	23		33	
4	HAR-16_012914_01	14	WS-14_012914_01F	24		34	
5	RD-78_012914_01	15	PZ-029_012914_01F	25		35	
6	WS-14_012914_01	16	RD-72_012914_01F	26		36	
7	PZ-029_012914_01	17	WS-14_012914_01MS	27		37	
8	RD-72_012914_01	18	WS-14_012914_01MSD	28		38	
9	RD-11_012914_01F	19	HAR-16_012914_01FMS	29		39	PBW1
10	RD-11_012914_36F	20	HAR-16_012914_01FMSD	30		40	PBW2

Notes: Samples appended with "F" were analyzed as dissolved

More EB's

EB = EB-RD-07-020714 (SDG: 280-51958)  
 EB = EB-RD-07-020714F ( ↓ )



LDC #: 31361D4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 12-14 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: R

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Mg		0.0139		0.0695										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 14 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	14									
B		0.00686		0.0343	0.031									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note: a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.



**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/7/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate Other EB Associated Samples: 7

Analyte	Blank ID	Sample Identification									
	EB_RD-07_020714	Action Level	7								
Sb	0.00044	0.0022									
Cr	0.00061	0.0030	0.00052								
Zn	0.0028	0.0140	0.0066								

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/7/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate Other EB Associated Samples: 15

Analyte	Blank ID	Sample Identification									
	EB_RD-07_020714F	Action Level	15								
Sb	0.00045	0.0022									
Zn	0.0026	0.0130	0.0087								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	1	2		
Barium	0.020	0.020	0	
Nickel	0.00074	0.00074	0	
Zinc	0.0028	0.0028	0	

Method: Metals

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	9	10		
Barium	0.020	0.020	0	
Lead	0.00021	0.00018U	15	
Nickel	0.00067	0.00047	35	
Zinc	0.0040	0.0023	54	No Qual.

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

2nd Reviewer: *[Signature]*

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	4	HAR-16_012914_03		
Arsenic	0.00057	0.000549	4	
Barium	0.017	0.0168	1	
Calcium	45	46.4	3	
Chromium	0.00050U	0.000251	66	No Qual.
Cobalt	0.000059	0.000200U	109	No Qual.
Iron	0.18	0.0811	76	No Qual.
Magnesium	10	8.43	17	
Manganese	0.0028	0.00140	67	No Qual.
Nickel	0.00088	0.000669	27	
Potassium	1.3	0.986	27	
Selenium	0.0012	0.00127	6	
Sodium	58	48.4	18	
Strontium	0.21	0.199	5	
Vanadium	0.0013	0.00130	0	
Zinc	0.058	0.0568	2	

Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	12	HAR-16_012914_03F		
Arsenic	0.00059	0.000594	1	
Barium	0.018	0.0166	8	
Calcium	47	46.4	1	
Magnesium	9.7	8.52	13	
Manganese	0.00049	0.000234	71	No Qual.
Nickel	0.0012	0.000683	55	No Qual.
Potassium	1.2	1.02	16	
Selenium	0.0014	0.00127	10	
Sodium	54	47.4	13	
Strontium	0.20	0.197	2	
Vanadium	0.0012	0.00118	2	
Zinc	0.064	0.0550	15	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Herbicides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
WS-14\_012914\_01

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Herbicides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No herbicide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No herbicides were detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No herbicides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 WS-14_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D5

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/04/14

SDG #: 280-51632-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JY6

2nd Reviewer: [Signature]

**METHOD:** GC Herbicides (EPA SW 846 Method 8151A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V61	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCs / b
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / split	ND	D = 1, 2 S = 4, HAR-16_012914-03
XIII.	Field blanks	N	(14A148)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

water

1	RD-11_012914_01	11	MB 280-210788/1-A	21		31	
2	RD-11_012914_36	12		22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5	WS-14_012914_01	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
HAR-18\_012914\_01  
WS-14\_012914\_01  
RD-11\_012914\_01DUP  
HAR-16\_012914\_01DUP  
HAR-18\_012914\_01MS  
HAR-18\_012914\_01MSD  
RD-78\_012914\_01  
HAR-18\_012914\_01DUP

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Chloride, Fluoride, Nitrate as Nitrogen, Nitrate, and Sulfate, Standard Method 2510B for Conductivity, EPA SW 846 Method 9012A for Total Cyanide, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, Standard Method 4500 S2-D for Sulfide, Standard Method 2540C for Total Dissolved Solids, and EPA Method 180.1 for Turbidity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51632-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flags	A or P
	RD-11_012914_01	RD-11_012914_36			
Ammonia as N	0.63 mg/L	0.63 mg/L	0 ( $\leq 35$ )	-	-
Fluoride	0.56 mg/L	0.56 mg/L	0 ( $\leq 35$ )	-	-
pH	8.19 units	8.26 units	1 ( $\leq 35$ )	-	-
Sulfide	0.042 mg/L	0.037 mg/L	13 ( $\leq 35$ )	-	-

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Alkalinity	120 mg/L	114 mg/L	5 ( $\leq 35$ )	-	-
Chloride	59 mg/L	54.3 mg/L	8 ( $\leq 35$ )	-	-
Fluoride	0.34 mg/L	0.342 mg/L	1 ( $\leq 35$ )	-	-
Nitrate as Nitrate	29 mg/L	28.2 mg/L	3 ( $\leq 35$ )	-	-
Perchlorate	320 ug/L	330 ug/L	3 ( $\leq 35$ )	-	-
pH	6.60 units	6.40 units	3 ( $\leq 35$ )	-	-
Specific conductance	550 umhos/cm	567 umhos/cm	3 ( $\leq 35$ )	-	-
Sulfate	63 mg/L	53.9 mg/L	16 ( $\leq 35$ )	-	-
Total dissolved solids	360 mg/L	381 mg/L	6 ( $\leq 35$ )	-	-

Analyte	Concentration		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Turbidity	2.6 NTU	2.57 NTU	1 (≤35)	-	-



**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 HAR-18_012914_01 WS-14_012914_01 RD-78_012914_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D6  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

### VALIDATION COMPLETENESS WORKSHEET

Level V *mg*

Date: 2-27-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: *[Signature]*

*and Nitrate)*

**METHOD:** Alkalinity (SM2320B), Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate-N, Sulfate (EPA Method 300.0), Conductivity (SM2510B), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D), TDS (SM2540C), Turbidity (EPA Method 180.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	{ split = 4 + HAR-16-012914-03 (SDG: 14A148)
X.	Field duplicates	SW	{ D = 1 + 2
XI	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
*all water*

1	RD-11_012914_01	11	RD-78_012914_01	21		31	
2	RD-11_012914_36	12	#5 DUP	22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5	HAR-18_012914_01	15		25		35	
6	WS-14_012914_01	16		26		36	
7	RD-11_012914_01DUP	17		27		37	
8	HAR-16_012914_01DUP	18		28	PBW1	38	
9	HAR-18_012914_01MS	19		29	PBW2	39	
10	HAR-18_012914_01MSD	20		30	PBW3	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	1	2		
Ammonia as N	0.63	0.63	0	
Fluoride	0.56	0.56	0	
pH (pH units)	8.19	8.26	1	
Sulfide	0.042	0.037	13	

Field Duplicates

Reviewer: MG

Method: Inorganics (see cover)

2nd Reviewer: /

split

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	4	HAR-16_012914_03		
Alkalinity	120	114	5	
Chloride	59	54.3	8	
Fluoride	0.34	0.342	1	
Nitrate as NO <sub>3</sub>	29	28.2	3	
Perchlorate (ug/L)	320	330	3	
pH (pH units)	6.60	6.40	3	
Specific Conductance (umhos/cm)	550	567	3	
Sulfate	63	53.9	16	
TDS	360	381	6	
Turbidity (NTU)	2.6	2.57	1	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

HAR-16\_012914\_01  
RD-78\_012914\_01  
PZ-029\_012914\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as extractable contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No total petroleum hydrocarbons as extractables were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	HAR-16_012914_01 RD-78_012914_01 PZ-029_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D8  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/04/14  
 Page: 1 of 1  
 Reviewer: SVG  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/29/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VII.	Laboratory control samples	A	<u>LCS</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates <u>/ Split</u>	N	<u>S = 1, HAR-16-012914-03 (14A148)</u>
XIII.	Field blanks	<u>ND</u>	<u>FB = FB-021214-19 (280-52081-1)</u> <u>EB = EB-RD-07-020714 (280-51958-1)</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_01	11	MB 280-210983/1-B	21		31	
2	RD-78_012914_01	12		22		32	
3	PZ-029_012914_01	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
TB\_RD-11\_012914  
RD-12\_012914\_01  
HAR-16\_012914\_01  
TB\_HAR-16\_012914

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 504.1 for 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found in the method blanks.

Samples TB\_RD-11\_012914 and TB\_HAR-16\_012914 were identified as trip blanks. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Data Qualification Summary -  
SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 TB_RD-11_012914 RD-12_012914_01 HAR-16_012914_01 TB_HAR-16_012914	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Laboratory Blank Data  
Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Field Blank Data Qualification  
Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG



LDC #: 31361D10

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/04/14

SDG #: 280-51632-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc. Inc.

Reviewer: JVG

2nd Reviewer: J

**METHOD:** GC 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane (EPA Method 504.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 10
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / split	ND	D = 1, 2 S = 5, HAR-16_012914_13
XIII.	Field blanks	ND	TB = 3 6 (14A148)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	MB 280-211586/4-A	21		31	
2	RD-11_012914_36	12		22		32	
3	TB_RD-11_012914	13		23		33	
4	RD-12_012914_01	14		24		34	
5	HAR-16_012914_01	15		25		35	
6	TB_HAR-16_012914	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** Organophosphorus Pesticides  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

### Sample Identification

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8141A for Organophosphorus Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No organophosphorus pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. The percent recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No organophosphorus pesticide was detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No organophosphorus pesticide was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D17

## VALIDATION COMPLETENESS WORKSHEET

Date: 7/04/14

SDG #: 280-51632-1

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: NB

2nd Reviewer: J

METHOD: GC Organophosphorus Pesticides (EPA SW 846 Method 8141A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1b
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	D = 1, 2 S = 4, HAR-16_012914_03
XIII.	Field blanks	N	(14A48)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

1	RD-11_012914_01	11	MB 280-210779/1-A	21		31	
2	RD-11_012914_36	12		22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Hexachlorophene

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01



## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8321A for Hexachlorophene.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No hexachlorophene was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No hexachlorophene was detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No hexachlorophene was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D44  
 SDG #: 280-51632-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/24/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** LC/MS Hexachlorophene (EPA SW 846 Method 8321A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/29/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VIII.	Laboratory control samples	A	<u>LCS</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	<u>NA</u>	
XVI.	Field duplicates / <u>Split</u>	<u>ND</u>	<u>D = 1, 2 S = 9, HAR-16.012914_03 (SDG)</u>
XVII.	Field blanks	N	<u>14A/14B</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinstate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	<u>MB 280-210917/9</u>	21		31
2	RD-11_012914_36	12		22		32
3	RD-12_012914_01	13		23		33
4	HAR-16_012914_01	14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No formaldehyde was detected in any of the samples.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No formaldehyde was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D71

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/04/14

SDG #: 280-51632-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	<i>SWA</i>	Sampling dates: 1/29/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	D = 1, 2 S = 4, HAR-16_012914_03
XIII.	Field blanks	N	(14A 148)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	RD-11_012914_01	11	MP 240-118218/5-A	21		31	
2	RD-11_012914_36	12		22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

WS-14\_012914\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51632-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51632-1	WS-14_012914_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG



**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	WS-14_012914_01	11	MB 280-211711/7	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

HAR-16\_012914\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51632-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No hydrazine was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Hydrazines	5.0U	0.18	186 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51632-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51632-1	HAR-16_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D76  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 3/04/14

Page: 1 of 1

Reviewer: JVB

2nd Reviewer: [Signature]

SOP DI-WC-0077

METHOD: HPLC Hydrazines (EPA SW846 Method 8345A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1p
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	SW	S = 1 + HAR-16-012914.03 (14A148)
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_01	11	MB 280 211785/25	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	


Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





LDC #: 21361 D76

### VALIDATION FINDINGS WORKSHEET Field Duplicates

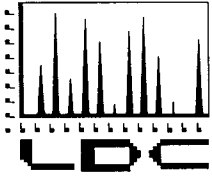
Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: 

METHOD:  GC  HPLC

- N N/A Were field duplicate pairs identified in this SDG?
- N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( $\mu\text{g/L}$ )		%RPD Limit: ( $\leq$ 35 %)	Qualification <u>Parent only</u> / All Samples
	1	HAR-16-012914-03		
A	5.0U	0.18	186	NA (< 5X RL)

Compound	Concentration ( )		%RPD Limit: ( $\leq$ %) )	Qualification Parent only / All Samples



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

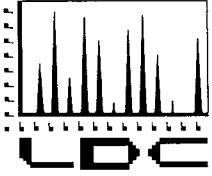
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31361:

<u>SDG #</u>	<u>Fraction</u>
280-51492-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51541-1/H4A290411	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51587-1/H4A300416	Nitrosodimethylamine, Chlorinated Pesticides,
280-51632-1	Polychlorinated Biphenyls, Metals, Wet Chemistry, Total
280-51633-1/H3B030412	Petroleum Hydrocarbons as Extractables, Explosives,
280-51670-1/H4B030402	Formaldehyde, Hydrazines, Perchlorate,
280-51767-1/H4B060406	Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Dioxins/Dibenzofurans  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51633-1/H4B030412

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
RD-78\_012914\_01  
WS-14\_012914\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4036029MB	2/5/14	OCDD	4.2 pg/L	All samples in SDG 280-51633-1/ H4B030412

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-11_012914_36	OCDD	3.8 pg/L	3.8U pg/L
RD-12_012914_01	OCDD	6.2 pg/L	6.2U pg/L
HAR-16_012914_01	OCDD	2.8 pg/L	2.8U pg/L
RD-78_012914_01	OCDD	3.7 pg/L	3.7U pg/L

No field blanks were identified in this SDG.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Regional Quality Assurance and Quality Control

Not applicable.

## IX. Internal Standards

Internal standards data were not reviewed for Level V.

## X. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51633-1/ H4B030412	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. System Performance

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:



Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	RD-11_012914_01	RD-11_012914_36			
1,2,3,4,6,7,8-HpCDD	2.8	0.98U	96 (≤35)	NQ	-
OCDD	26	3.8	149 (≤35)	NQ	-
1,2,3,4,6,7,8-HpCDF	1.2	0.71U	51 (≤35)	NQ	-
1,2,3,4,7,8,9-HpCDF	1.6	0.84U	62 (≤35)	NQ	-
OCDF	13	1.1U	169 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
2,3,7,8-TCDD	2.2U	1.10	67 (≤35)	NQ	-
1,2,3,7,8-PeCDF	0.89U	0.987	10 (≤35)	-	-
2,3,4,7,8-PeCDF	0.80U	0.470	52 (≤35)	NQ	-
1,2,3,7,8-PeCDD	1.2U	1.55	25 (≤35)	-	-
1,2,3,4,7,8-HxCDF	0.48U	0.301	46 (≤35)	NQ	-
1,2,3,6,7,8-HxCDF	0.50U	0.666	28 (≤35)	-	-
2,3,4,6,7,8-HxCDF	0.46U	1.05	78 (≤35)	NQ	-
1,2,3,4,7,8-HxCDD	1.0U	0.521	63 (≤35)	NQ	-
1,2,3,6,7,8-HxCDD	1.1U	1.72	44 (≤35)	NQ	-
1,2,3,7,8,9-HxCDF	0.56U	1.63	98 (≤35)	NQ	-
1,2,3,4,6,7,8-HpCDF	0.67U	0.799	18 (≤35)	-	-
1,2,3,4,6,7,8-HpCDD	0.94U	0.745	23 (≤35)	-	-

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
1,2,3,4,7,8,9-HpCDF	0.84U	0.900	7 (≤35)	-	-
OCDD	2.8	1.34	71 (≤35)	NQ	-
OCDF	1.4	1.54	10 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51633-1/H4B030412**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51633-1/ H4B030412	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 RD-78_012914_01 WS-14_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51633-1/H4B030412**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51633-1/ H4B030412	RD-11_012914_36	OCDD	3.8U pg/L	A	B
280-51633-1/ H4B030412	RD-12_012914_01	OCDD	6.2U pg/L	A	B
280-51633-1/ H4B030412	HAR-16_012914_01	OCDD	2.8U pg/L	A	B
280-51633-1/ H4B030412	RD-78_012914_01	OCDD	3.7U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51633-1/H4B030412**

No Sample Data Qualified in this SDG

LDC #: 31361E21

### VALIDATION COMPLETENESS WORKSHEET

Date: 3/14/14

SDG #: 280-51633-1/H4B030412

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVG

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	N	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates / Split	SW	D = 1, 2 S = 4, HAR-16_012914_03 (14A148)
XV.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-11_012914_01	11	4036029 MB	21	31
2	RD-11_012914_36	12		22	32
3	RD-12_012914_01	13		23	33
4	HAR-16_012914_01	14		24	34
5	RD-78_012914_01	15		25	35
6	WS-14_012914_01	16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LDC #: 31361 E21

### VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1

Reviewer: JV6

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?

Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y N N/A Was the method blank contaminated?

Blank extraction date: 2/05/14 Blank analysis date: 2/11/14

Associated samples: A11 (B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification				
		2	3	4	5	
	4036029 MB	(5x)				
G	4.2 *	21	3.8*/U	6.2/U	2.8*/U	3.7*/U

\* EMPC

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification				
		2	3	4	5	

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were field duplicate pairs identified in this SDG.  
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (pg/L)		RPD (≤35%)	Qualifications (Parent only)
	1	2		
F	2.8 *	0.984	96	NR (=5XRL)
G	26	3.8	149	
O	1.2 *	0.714	51	
P	1.6 *	0.844	62	
Q	13	1.14	169	

\* EMPC

**Field Split**

Compound	Concentration (pg/L)		RPD (≤35%)	Qualifications (Parent only)
	4	HAR-16-012914-03		
G	2.8 *			
Q	1.4 *			
A		1.10 *		
I		0.987		
J		0.470		

\* EMPC

Compound	Concentration ( )		RPD (≤35%)	Qualifications (Parent only)

Field Splits

Reviewer: JVG

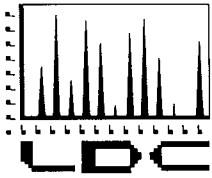
2nd Reviewer: *[Signature]*

Method: HRGC/HRMS Dioxins (EPA SW 846 Method 8290)

Analyte	Concentration (pg/L)		RPD (≤35%)	Qualifications (Parent only)
	HAR-16_012914_01	HAR-16_012914_03		
A	2.2U	1.10*	67	NQ (<5xRL)
I	0.89U	0.987*	10	
J	0.80U	0.470*	52	NQ (<5xRL)
B	1.2U	1.55	25	
K	0.48U	0.301*	46	NQ (<5xRL)
L	0.50U	0.666*	28	
M	0.46U	1.05*	78	NQ (<5xRL)
C	1.0U	0.521*	63	NQ (<5xRL)
D	1.1U	1.72*	44	NQ (<5xRL)
N	0.56U	1.63*	98	NQ (<5xRL)
O	0.67U	0.799*	18	
F	0.94U	0.745*	23	
P	0.84U	0.900	7	
G	2.8*	1.34	71	NQ (<5xRL)
Q	1.4*	1.54	10	

\*EMPC





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

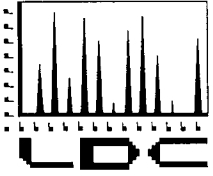
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31361:

<u>SDG #</u>	<u>Fraction</u>
280-51492-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51541-1/H4A290411	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51587-1/H4A300416	Nitrosodimethylamine, Chlorinated Pesticides,
280-51632-1	Polychlorinated Biphenyls, Metals, Wet Chemistry, Total
280-51633-1/H3B030412	Petroleum Hydrocarbons as Extractables, Explosives,
280-51670-1/H4B030402	Formaldehyde, Hydrazines, Perchlorate,
280-51767-1/H4B060406	Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng for'.

Pei Geng  
Project Manager/Senior Chemist



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51670-1/H4B030402

### Sample Identification

HAR-26\_013014\_01

HAR-45A\_013014\_01

HAR-45B\_013014\_01

PZ-016G\_013014\_01

HAR-45B\_013014\_01MS

HAR-45B\_013014\_01MSD

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 280-51670-1/ H4B030402	All TCL compounds	Cooler temperature was reported at 13.2°C upon receipt by the laboratory.	Cooler temperature must be 4±2°C.	J (all detects) UJ (all non-detects)	A

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4036029MB	2/5/14	OCDD	4.2 pg/L	All samples in SDG 280-51670-1/ H4B030402

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-26_013014_01	OCDD	1.9 pg/L	1.9U pg/L

Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-45A_013014_01	OCDD	2.2 pg/L	2.2U pg/L
HAR-45B_013014_01	OCDD	2.0 pg/L	2.0U pg/L
PZ-016G_013014_01	OCDD	6.0 pg/L	6.0U pg/L

Sample FB\_021214\_19 (from SDG 280-52090-1) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	OCDD	17 pg/L	PZ-016G_013014_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PZ-016G_013014_01	OCDD	6.0 pg/L	6.0U pg/L

#### VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VIII. Regional Quality Assurance and Quality Control

Not applicable.

#### IX. Internal Standards

Internal standards data were not reviewed for Level V.

## X. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51670-1/ H4B030402	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. System Performance

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51670-1/H4B030402**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51670-1/ H4B030402	HAR-26_013014_01 HAR-45A_013014_01 HAR-45B_013014_01 PZ-016G_013014_01	All TCL compounds	J (all detects) UJ (all non-detects)	A	Cooler temperatures (*I)
280-51670-1/ H4B030402	HAR-26_013014_01 HAR-45A_013014_01 HAR-45B_013014_01 PZ-016G_013014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51670-1/H4B030402**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51670-1/ H4B030402	HAR-26_013014_01	OCDD	1.9U pg/L	A	B
280-51670-1/ H4B030402	HAR-45A_013014_01	OCDD	2.2U pg/L	A	B
280-51670-1/ H4B030402	HAR-45B_013014_01	OCDD	2.0U pg/L	A	B
280-51670-1/ H4B030402	PZ-016G_013014_01	OCDD	6.0U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51670-1/H4B030402**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51670-1/ H4B030402	PZ-016G_013014_01	OCDD	6.0U pg/L	A	F

LDC #: 31361F21

### VALIDATION COMPLETENESS WORKSHEET

Date: 3/04/14

SDG #: 280-51670-1/H4B030402

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVP

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 1/30/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	N	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	SW	FB = FB_021214_19 (280-52090-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	HAR-26_013014_01	11	9036089 MB	21		31	
2	HAR-45A_013014_01	12		22		32	
3	HAR-45B_013014_01	13		23		33	
4	PZ-016G_013014_01	14		24		34	
5	HAR-45B_013014_01MS	15		25		35	
6	HAR-45B_013014_01MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



LDC #: 31361 F21

## VALIDATION FINDINGS WORKSHEET

### Blanks

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A      Were all samples associated with a method blank?
- Y  N  N/A      Was a method blank performed for each matrix and whenever a sample extraction was performed?
- Y  N  N/A      Was the method blank contaminated?

Blank extraction date: 2/05/14      Blank analysis date: 2/11/14

Associated samples: A11      (B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification								
	4036029 MB	(5X)	1	2	3	4				
G	4.2*	21	1.9*/U	2.2*/U	2.0*/U	6.0/U				

\* EMPC

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 3/361 F21

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were field blanks identified in this SDG?

Blank units: pg/L Associated sample units: pg/L

Sampling date: 2/12/14

Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 4 (F)

Compound	Blank ID	Sample Identification							
	<u>FB 021214-19</u>		<u>4</u>						
<u>G</u>	<u>17</u>		<u>6.0 / U</u>						
CRQL									

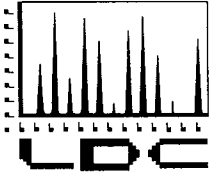
Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							
CRQL									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

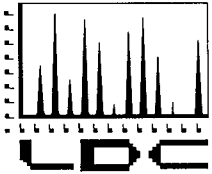
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31361:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51492-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51541-1/H4A290411	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51587-1/H4A300416	Nitrosodimethylamine, Chlorinated Pesticides,
280-51632-1	Polychlorinated Biphenyls, Metals, Wet Chemistry, Total
280-51633-1/H3B030412	Petroleum Hydrocarbons as Extractables, Explosives,
280-51670-1/H4B030402	Formaldehyde, Hydrazines, Perchlorate,
280-51767-1/H4B060406	Dioxins/Dibenzofurans, Pentachlorophenol, Herbicides, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Hexachlorophene

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



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- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng' followed by a stylized flourish.

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51767-1/H4B060406

**Sample Identification**

RD-37\_020314\_01  
RD-84\_020314\_01  
HAR-01\_020314\_01  
C-1\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
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- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4037040MB	2/6/14	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	1.9 pg/L 14 pg/L 0.53 pg/L 0.90 pg/L 5.3 pg/L	All samples in SDG 280-51767-1/ H4B060406

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-37_020314_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	1.2 pg/L 10 pg/L 0.12 pg/L	1.2U pg/L 10U pg/L 0.12U pg/L
RD-84_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	1.6 pg/L 9.1 pg/L 0.58 pg/L 0.86 pg/L	1.6U pg/L 9.1U pg/L 0.58U pg/L 0.86U pg/L

Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-01_020314_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	0.40 pg/L 6.8 pg/L 1.9 pg/L	0.40U pg/L 6.8U pg/L 1.9U pg/L
C-1_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.72 pg/L 4.5 pg/L 0.41 pg/L 0.18 pg/L 0.58 pg/L	0.72U pg/L 4.5U pg/L 0.41U pg/L 0.18U pg/L 0.58U pg/L
RD-73_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.70 pg/L 3.7 pg/L 0.15 pg/L 0.68 pg/L	0.70U pg/L 3.7U pg/L 0.15U pg/L 0.68U pg/L
RD-73_020314_36	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.64 pg/L 5.3 pg/L 0.39 pg/L 0.71 pg/L	0.64U pg/L 5.3U pg/L 0.39U pg/L 0.71U pg/L

Sample FB\_021214\_19 (from SDG 280-52090-1) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	OCDD	17 pg/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
C-1_020314_01	OCDD	4.5 pg/L	4.5U pg/L
RD-73_020314_01	OCDD	3.7 pg/L	3.7U pg/L
RD-73_020314_36	OCDD	5.3 pg/L	5.3U pg/L

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
HAR-01_020314_01MS/MSD (HAR-01_020314_01)	2,3,7,8-TCDD	-	132 (77-127)	-	J (all detects)	A

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Regional Quality Assurance and Quality Control

Not applicable.

## IX. Internal Standards

Internal standards data were not reviewed for Level V.

## X. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51767-1/ H4B060406	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. System Performance

Raw data were not reviewed for this SDG.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XIV. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01	RD-73_020314_36			
1,2,3,4,6,7,8-HpCDD	0.70	0.64	9 ( $\leq 35$ )	-	-
OCDD	3.7	5.3	36 ( $\leq 35$ )	NQ	-
2,3,4,7,8-PeCDF	0.13	0.20U	42 ( $\leq 35$ )	NQ	-
1,2,3,6,7,8-HxCDF	0.15	0.12U	22 ( $\leq 35$ )	-	-
2,3,4,6,7,8-HxCDF	0.092	0.13U	34 ( $\leq 35$ )	-	-
1,2,3,4,6,7,8-HpCDF	0.15	0.39	89 ( $\leq 35$ )	NQ	-
OCDF	0.68	0.71	4 ( $\leq 35$ )	-	-
1,2,3,4,7,8-HxCDF	0.086U	0.12	33 ( $\leq 35$ )	-	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51767-1/H4B060406**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51767-1/ H4B060406	HAR-01_020314_01	2,3,7,8-TCDD	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51767-1/ H4B060406	RD-37_020314_01 RD-84_020314_01 HAR-01_020314_01 C-1_020314_01 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51767-1/H4B060406**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51767-1/ H4B060406	RD-37_020314_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	1.2U pg/L 10U pg/L 0.12U pg/L	A	B
280-51767-1/ H4B060406	RD-84_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	1.6U pg/L 9.1U pg/L 0.58U pg/L 0.86U pg/L	A	B
280-51767-1/ H4B060406	HAR-01_020314_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	0.40U pg/L 6.8U pg/L 1.9U pg/L	A	B
280-51767-1/ H4B060406	C-1_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.72U pg/L 4.5U pg/L 0.41U pg/L 0.18U pg/L 0.58U pg/L	A	B
280-51767-1/ H4B060406	RD-73_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.70U pg/L 3.7U pg/L 0.15U pg/L 0.68U pg/L	A	B
280-51767-1/ H4B060406	RD-73_020314_36	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.64U pg/L 5.3U pg/L 0.39U pg/L 0.71U pg/L	A	B



**Boeing SSFL GW 1st Qtr 2014  
 Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51767-1/H4B060406**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51767-1/ H4B060406	C-1_020314_01	OCDD	4.5U pg/L	A	F
280-51767-1/ H4B060406	RD-73_020314_01	OCDD	3.7U pg/L	A	F
280-51767-1/ H4B060406	RD-73_020314_36	OCDD	5.3U pg/L	A	F

LDC #: 31361G21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/04/14

SDG #: 280-51767-1/H4B060406

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVB

2nd Reviewer: JVB

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/03/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	N	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D = 5, 6
XV.	Field blanks	SW	FB = FB_021214-19 (280-52090-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-37_020314_01	11	4037640 MB	21		31	
2	RD-84_020314_01	12		22		32	
3	HAR-01_020314_01	13		23		33	
4	C-1_020314_01	14		24		34	
5	RD-73_020314_01	15		25		35	
6	RD-73_020314_36	16		26		36	
7	HAR-01_020314_01MS	17		27		37	
8	HAR-01_020314_01MSD	18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Were all samples associated with a method blank?
- Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
- Y N N/A Was the method blank contaminated?

Blank extraction date: 2/06/14 Blank analysis date: 2/11/14

Associated samples: All (B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification							
		(5x)	1	2	3	4	5	6	
F	4037040 MB	9.5	1.2 <sup>*</sup> /U	1.6/U	0.40 <sup>*</sup> /U	0.72/U	0.70 <sup>*</sup> /U	0.64/U	
G	14	70	10/U	9.1/U	6.8/U	4.5 <sup>*</sup> /U	3.7 <sup>*</sup> /U	5.3/U	
O	0.53 *	2.65		0.58 <sup>*</sup> /U		0.41 <sup>*</sup> /U	0.15 <sup>*</sup> /U	0.39 <sup>*</sup> /U	
<del>X</del> P	0.90	4.5				0.18 <sup>*</sup> /U			
Q	5.3 *	26.5	0.12 <sup>*</sup> /U	0.86 <sup>*</sup> /U	1.9 <sup>*</sup> /U	0.58 <sup>*</sup> /U	0.68 <sup>*</sup> /U	0.71 <sup>*</sup> /U	

\* EMPC

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 31361 G21

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: <

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were field blanks identified in this SDG?

Blank units: pg/L Associated sample units: pg/L

Sampling date: 2/12/14

Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 4 - 6 (F)

Compound	Blank ID	Sample Identification							
	<u>FB-021214-19</u>		<u>4</u>	<u>5</u>	<u>6</u>				
<u>G</u>	<u>17</u>		<u>4.5*/u</u>	<u>3.7*/u</u>	<u>5.3/u</u>				
CRQL									

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) \_\_\_\_\_ / Rinsate / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							
CRQL									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 3/361 G2/

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A

Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A

Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A

Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		7/8	A	( )	132 (77-127)	( )	3	J detx/A (Q)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A  
Y N N/A

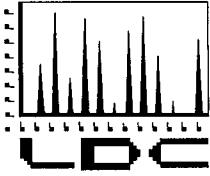
Were field duplicate pairs identified in this SDG.  
 Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( pg/L )		RPD (≤35%)	Qualifications (Parent only)
	5	6		
F	0.70 *	0.64	9	
G	3.7 *	5.3	36	NQ (L5XRL)
J	0.13 *	0.20 U	42	↓
L	0.15 *	0.12 U	22	
M	0.092 *	0.13 U	34	
O	0.15 *	0.39 *	89	NQ (L5XRL)
Q	0.68 *	0.71 *	4	
K	0.086 U	0.12 *	33	

\* EMPC

Compound	Concentration ( )		RPD (≤35%)	Qualifications (Parent only)

Compound	Concentration ( )		RPD (≤35%)	Qualifications (Parent only)



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 18, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

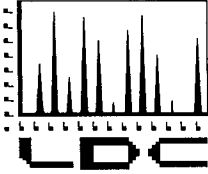
**LDC Project # 31380:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51669-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51716-1	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51766-1	Chlorinated Pesticides, Polychlorinated Biphenyls, Metals,
280-51797-1	Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons
280-51799-1/H4B070408	as Gasoline, Total Petroleum Hydrocarbons as
280-51854-1	Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-
280-51855-1/H4B100402	chloropropane, Organophosphorus Pesticides, Explosives,
	Hexachlorophene, Formaldehyde, Hydrazines,
	Perchlorate, Nitrosodimethylamine, Pentachlorophenol,
	Fluoride, Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010





- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1st Qtr 2014)

Table with columns: LDC, SDG#, DATE REC'D, (3) DATE DUE, VOA (8260B), 1,2,3-TCP (524.2-S), 1,4-Dioxane (8260B-S), SVOA (8270C), SVOA (8270C -SIM), NDMA (1625C), PCP (8270C), Pest. (8081A), PCBs (8082), Metals (SW846), Diss. Metals (SW846), Herbs (8151A), GRO (8015B), DRO (8015B), EDB (504.1). Rows include Matrix: Water/Soil, A, B, C, D, F, and Total T/PG.

EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1st Qtr 2014)

Table with columns: LDC, SDG#, DATE REC'D, (3) DATE DUE, OPHS Pest. (8141A), Dioxins (8290), HCP (8321A), Formaldehyde (8315A), Expl. (8330A), CLO2 (6860), 1,1-DMH (DVWC 0077), Hydra-zine (DVWC), MMH (DVWC 0077). Rows include Matrix: Water/Soil, A, B, C, D, E, F, G, and Total T/PG.

EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1st Qtr 2014)

Table with columns: LDC, SDG#, DATE REC'D, (3) DATE DUE, Alk. (2320B), NH3-N (4500-NH3 C), Cl (300.0), F (300.0), NO3 (300.0), NO2 (300.0), SO4 (300.0), Cond. (2510B), Total CN- (9012A), Cr(VI) (7196A), CLO4 (314.0), pH (9040B), S- (4500 S2 D), TDS (2540C), Turb. (180.1). Rows include Matrix: Water/Soil, A, B, C, D, F, and Total T/PG.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
TB\_HAR-26\_013014  
RD-45A\_013014\_01  
TB\_RD-45A\_013014  
RD-45B\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
TB\_RD-77\_013014  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blank.

Samples TB\_HAR-26\_013014, TB\_RD-45A\_013014, and TB\_RD-77\_013014 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_HAR-26_013014	1/30/14	Acetone	2.3 ug/L	HAR-26_013014_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
HAR-26_013014_01	Toluene-d8	87 (88-110)	Isobutanol	J (all detects) UJ (all non-detects)	A

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TB_HAR-26_013014	Bromofluorobenzene	81 (86-115)	Isobutanol	J (all detects) UJ (all non-detects)	A
TB_HAR-26_013014	Toluene-d8 Bromofluorobenzene Dibromofluoromethane	81 (88-110) 79 (86-115) 78 (86-118)	Acrolein Acrylonitrile	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
MB280-211244/5	Dibromofluoromethane Toluene-d8 Bromofluorobenzene	81 (86-118) 84 (88-110) 84 (86-115)	Acrolein Acrylonitrile	J (all detects) UJ (all non-detects)	P

### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were not within QC limits. Since the parent sample result was greater than 4X the spike concentration, no data were qualified.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

### XIV. System Performance

Raw data were not reviewed for this SDG.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-77_013014_01	RD-77_013014_36			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.6	6.1	9 (≤35)	-	-
1,1-Dichloroethane	5.1	5.3	4 (≤35)	-	-
1,1-Dichloroethene	70	73	4 (≤35)	-	-
cis-1,2-Dichloroethene	120	120	0 (≤35)	-	-
Trichloroethene	2500	2700	8 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01	Isobutanol	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-51669-1	TB_HAR-26_013014	Isobutanol Acrolein Acrylonitrile	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-51669-1	HAR-26_013014_01 TB_HAR-26_013014 RD-45A_013014_01 TB_RD-45A_013014 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36 TB_RD-77_013014	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG



LDC #: 31380A1a  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: ym  
 2nd Reviewer: JV6

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards		
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 6+7
XVII.	Field blanks	SW	TB = 2, 4, 8

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	123 HAR-26_013014_01	11		21		31	3 MB 280-211431/7
2	123 TB_HAR-26_013014	12		22		32	
3	RD-45A_013014_01	13		23		33	
4	TB_RD-45A_013014	14		24		34	
5	RD-45B_013014_01	15		25		35	
6	RD-77_013014_01	16		26		36	
7	RD-77_013014_36	17		27		37	
8	TB_RD-77_013014	18		28		38	
9	RD-45B_013014_01MS	19		29	1 MB 280-211233/8	39	
10	RD-45B_013014_01MSD	20		30	2 MB 280-211244/5	40	

## TARGET COMPOUND WORKSHEET

**METHOD: VOA**

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP. <i>Isobutanol</i>
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y  N  N/A Were field blanks identified in this SDG?

Y  N  N/A Were target compounds detected in the field blanks?

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 1

Compound	Blank ID <u>2</u>	Sample Identification							
Sampling Date	<u>1/30/14</u>								
<u>F</u>	<u>2.3</u>								

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							
Sampling Date									

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							
Sampling Date									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

### VALIDATION FINDINGS WORKSHEET Surrogate Spikes

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Were all surrogate %R within QC limits?  
 N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		1	TOL	87 (88-110)	J/uJ/A (PAPP) S
				( )	
		2	BFB	81 (80-115)	J/uJ/A (PAPP) S
			TOL	81 (88-110)	J/uJ/A (FFFF,GGGG) S
			BFB	79 (80-115)	↓
			DFM	78 (80-118)	
				( )	
		MB280-211244/5	DFM	81 (80-118)	J/uJ/P (FFFF,GGGG) S
			TOL	84 (88-110)	↓
			BFB	84 (80-115)	
				( )	
		10	BFB	85 (80-115)	No qual - MS sample
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

(TOL) = Toluene-d8                      (DCE) = 1,2-Dichloroethane-d4  
 (BFB) = Bromofluorobenzene        (DFM) = Dibromofluoromethane



VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: GCMS VOA (EPA SW 846 Method 8260B)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	6	7		
TTT	5.6	6.1	9	--
I	5.1	5.3	4	--
H	70	73	4	--
QQQ	120	120	0	--
S	2500	2700	8	--

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
TB\_HAR-26\_013014  
RD-45A\_013014\_01  
TB\_RD-45A\_013014  
RD-45B\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
TB\_RD-77\_013014  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_HAR-26\_013014, TB\_RD-45A\_013014, and TB\_RD-77\_013014 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-77_013014_01	RD-77_013014_36			
1,4-Dioxane	18	18	0 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 TB_HAR-26_013014 RD-45A_013014_01 TB_RD-45A_013014 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36 TB_RD-77_013014	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A1b  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: *SM*  
 2nd Reviewer: *JVG*

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D=6+7
XVII.	Field blanks	ND	TB=2,4,8

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	HAR-26_013014_01	11		21		31	
2	TB_HAR-26_013014	12		22		32	
3	RD-45A_013014_01	13		23		33	
4	TB_RD-45A_013014	14		24		34	
5	RD-45B_013014_01	15		25		35	
6	RD-77_013014_01	16		26		36	
7	RD-77_013014_36	17		27		37	
8	TB_RD-77_013014	18		28		38	
9	RD-45B_013014_01MS	19		29		39	
10	RD-45B_013014_01MSD	20		30	MB280-211944/5	40	

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**  
Field Duplicates

Method: GCMS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	6	7		
HHHH	18	18	0	--

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
TB\_HAR-26\_013014  
RD-45A\_013014\_01  
TB\_RD-45A\_013014  
RD-45B\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
TB\_RD-77\_013014  
HAR-26\_013014\_01DUP  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Samples TB\_HAR-26\_013014, TB\_RD-45A\_013014, and TB\_RD-77\_013014 were identified as trip blanks. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No 1,2,3-trichloropropane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 TB_HAR-26_013014 RD-45A_013014_01 TB_RD-45A_013014 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36 TB_RD-77_013014	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A1c  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: JVG

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	DUP A/A	D=1+9
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D=6+7
XVII.	Field blanks	ND	TB=2,4,8

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	HAR-26_013014_01	11	2	RD-45B_013014_01MSD	21		31	
2	TB_HAR-26_013014	12			22		32	
3	RD-45A_013014_01	13			23		33	
4	TB_RD-45A_013014	14			24		34	
5	2	RD-45B_013014_01	15		25		35	
6	2	RD-77_013014_01	16		26		36	
7	2	RD-77_013014_36	17		27		37	
8	2	TB_RD-77_013014	18		28		38	
9	1	HAR-26_013014_01DUP	19		29	1 MB440-159952/3	39	
10	2	RD-45B_013014_01MS	20		30	2 MB440-160168/4	40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
RD-45A\_013014\_01  
RD-45B\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-45B_013014_01MS/MSD (RD-45B_013014_01)	Butylbenzylphthalate	63 (71-120)	-	-	J (all detects) UJ (all non-detects)	A
	Diethylphthalate	64 (73-120)	-	-		
	Dimethylphthalate	65 (73-120)	-	-		
	Di-n-butylphthalate	63 (75-120)	-	-		
	Di-n-octylphthalate	65 (71-120)	-	-		

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. System Performance

Raw data were not reviewed for this SDG.

### XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

### XV. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplciates. No volatiles were detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	RD-45B_013014_01	Butylbenzylphthalate Diethylphthalate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51669-1	HAR-26_013014_01 RD-45A_013014_01 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A2a  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: *Am*  
 2nd Reviewer: *JVG*

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	ND	D = 4+5
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	HAR-26_013014_01	11		21		31	
2	RD-45A_013014_01	12		22		32	
3	RD-45B_013014_01	13		23		33	
4	RD-77_013014_01	14		24		34	
5	RD-77_013014_36	15		25		35	
6	RD-45B_013014_01MS	16		26		36	
7	RD-45B_013014_01MSD	17		27		37	
8		18		28		38	
9		19	MB 280-210998/1-A	29		39	
10		20		30		40	

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate ✓	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate ✓	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate ✓	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate ✓	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate ✓	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Polynuclear Aromatic Hydrocarbons  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

RD-45A\_013014\_01  
RD-45B\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No polynuclear aromatic hydrocarbons were detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	RD-45A_013014_01 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A2b  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: *CSM*  
 2nd Reviewer: *JL*

**METHOD:** GC/MS <sup>PAHs</sup> Semivolatiles (EPA SW846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D=3+4
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	RD-45A_013014_01	11		21		31	
2	RD-45B_013014-01	12		22		32	
3	RD-77_013014-01	13		23		33	
4	RD-77_013014-36	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB280-211082/1-A	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-31669-1

**Sample Identification**

HAR-26\_013014\_01  
PZ-016G\_013014\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No chlorinated pesticide contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No chlorinated pesticide contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

**XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

**XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

**XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-31669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-31669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-31669-1	HAR-26_013014_01 PZ-016G_013014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-31669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-31669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A3a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-3-14

SDG #: 280-51669-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: TR

2nd Reviewer: JNG

**METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	EB = EB-RD-100-012414 (280-51492-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

FB = FB-021214-19 (280-52081-1)  
D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: Water

1	HAR-26_013014_01	11		21		31	
2	PZ-016G_013014_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MPB 280-2109167/1-A	30		40	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
RD-45A\_013014\_01  
RD-45B\_013014\_01  
PZ-016G\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No polychlorinated biphenyl contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

## XI. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

## XII. Target Compound Identification

Raw data were not reviewed for this SDG.

## XIII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No polychlorinated biphenyl were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 RD-45A_013014_01 RD-45B_013014_01 PZ-016G_013014_01 RD-77_013014_01 RD-77_013014_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-3-14

SDG #: 280-51669-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: *Tr*2nd Reviewer: *JVL***METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	ND	D = 5+6
XVI.	Field blanks	ND	FB = FB-02/24/19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: *water*

1	HAR-26_013014_01	11		21		31	
2	RD-45A_013014_01	12		22		32	
3	RD-45B_013014_01	13		23		33	
4	PZ-016G_013014_01	14		24		34	
5	RD-77_013014_01	15		25		35	
6	RD-77_013014_36	16		26		36	
7	RD-45B_013014_01MS	17		27		37	
8	RD-45B_013014_01MSD	18		28		38	
9		19		29		39	
10		20	MB280-211198/1-A	30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

### Sample Identification

HAR-26\_013014\_01  
RD-45A\_013014\_01  
RD-45B\_013014\_01  
PZ-016G\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
HAR-26\_013014\_01F  
RD-45A\_013014\_01F  
RD-45B\_013014\_01F  
PZ-016G\_013014\_01F  
RD-77\_013014\_01F  
RD-77\_013014\_36F  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD  
RD-45B\_013014\_01FMS  
RD-45B\_013014\_01FMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 16 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.148 mg/L	RD-45A_013014_01 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36
PB (prep blank)	Molybdenum	0.000187 mg/L	RD-45A_013014_01 RD-45B_013014_01 PZ-016G_013014_01 RD-77_013014_01 RD-77_013014_36
PB (prep blank)	Molybdenum	0.000232 mg/L	RD-45A_013014_01F RD-45B_013014_01F PZ-016G_013014_01F RD-77_013014_01F RD-77_013014_36F

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-77_013014_01	Molybdenum	0.00074 mg/L	0.00074U mg/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-77_013014_36	Molybdenum	0.00067 mg/L	0.00067U mg/L
RD-77_013014_01F	Molybdenum	0.00084 mg/L	0.00084U mg/L
RD-77_013014_36F	Molybdenum	0.00071 mg/L	0.00071U mg/L

Samples EB\_RD-07\_020714, EB\_RD-07\_020714F (both from SDG 280-51958-1), EB\_RD-100\_012414, and EB\_RD-100\_012414F (both from SDG 280-51492-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	PZ-016G_013014_01
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	PZ-016G_013014_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel	0.00041 mg/L	PZ-016G_013014_01
FB_021214_19F	2/12/14	Nickel	0.00048 mg/L	PZ-016G_013014_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
PZ-016G_013014_01	Nickel Zinc	0.00042 mg/L 0.0032 mg/L	0.00042U mg/L 0.0032U mg/L
PZ-016G_013014_01F	Nickel Zinc	0.00066 mg/L 0.0057 mg/L	0.00066U mg/L 0.0057U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For RD-45B\_013014\_01MS/MSD and RD-45B\_013014\_01FMS/MSD, no data were qualified for Zinc percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51669-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XIII. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 and samples RD-77\_013014\_01F and RD-77\_013014\_36F were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-77_013014_01	RD-77_013014_36			
Arsenic	0.017	0.017	0 (≤35)	-	-
Barium	0.045	0.046	2 (≤35)	-	-
Boron	0.15	0.15	0 (≤35)	-	-
Calcium	88	87	1 (≤35)	-	-
Magnesium	17	17	0 (≤35)	-	-
Manganese	0.0011	0.0011	0 (≤35)	-	-
Molybdenum	0.00074	0.00067	10 (≤35)	-	-
Nickel	0.0011	0.0011	0 (≤35)	-	-
Potassium	3.4	3.4	0 (≤35)	-	-
Sodium	36	36	0 (≤35)	-	-
Strontium	0.29	0.29	0 (≤35)	-	-
Zinc	0.013	0.014	7 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-77_013014_01F	RD-77_013014_36F			
Arsenic	0.018	0.018	0 (≤35)	-	-
Barium	0.049	0.047	4 (≤35)	-	-
Boron	0.15	0.15	0 (≤35)	-	-
Calcium	87	88	1 (≤35)	-	-
Magnesium	17	17	0 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-77_013014_01F	RD-77_013014_36F			
Manganese	0.0011	0.00086	24 (≤35)	-	-
Molybdenum	0.00084	0.00071	17 (≤35)	-	-
Nickel	0.0014	0.0012	15 (≤35)	-	-
Potassium	3.3	3.3	0 (≤35)	-	-
Sodium	35	36	3 (≤35)	-	-
Strontium	0.29	0.29	0 (≤35)	-	-
Thallium	0.000062	0.000050U	21 (≤35)	-	-
Zinc	0.016	0.014	13 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 RD-45A_013014_01 RD-45B_013014_01 PZ-016G_013014_01 RD-77_013014_01 RD-77_013014_36 HAR-26_013014_01F RD-45A_013014_01F RD-45B_013014_01F PZ-016G_013014_01F RD-77_013014_01F RD-77_013014_36F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51669-1	RD-77_013014_01	Molybdenum	0.00074U mg/L	A	B
280-51669-1	RD-77_013014_36	Molybdenum	0.00067U mg/L	A	B
280-51669-1	RD-77_013014_01F	Molybdenum	0.00084U mg/L	A	B
280-51669-1	RD-77_013014_36F	Molybdenum	0.00071U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51669-1	PZ-016G_013014_01	Nickel Zinc	0.00042U mg/L 0.0032U mg/L	A	F
280-51669-1	PZ-016G_013014_01F	Nickel Zinc	0.00066U mg/L 0.0057U mg/L	A	F

LDC #: 31380A4  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-5-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: *[Signature]*

gmj

**METHOD:** Metals (EPA SW 846 Method 6020A/7000) / 6010B / 7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-30-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD #13→16: 2n-4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	<del>Furnace Atomic Absorption QC</del>	<del>N</del>	<del>not utilized</del> w
XI.	ICP Serial Dilution	N	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	SW	D = 5+6 D = 11+12
XV.	Field Blanks	SW	EB = EB-RD-100-012414* (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

all water

FB = FB-021214-19 (SDG: 280-52081-1)  
 FB = FB-021214-19F ( )

1	HAR-26_013014_01	11	RD-77_013014_01F	21		31	
2	RD-45A_013014_01	12	RD-77_013014_36F	22		32	
3	RD-45B_013014_01	13	RD-45B_013014_01MS	23		33	
4	PZ-16G_013014_01	14	RD-45B_013014_01MSD	24		34	
5	RD-77_013014_01	15	RD-45B_013014_01FMS	25		35	
6	RD-77_013014_36	16	RD-45B_013014_01FMSD	26		36	
7	HAR-26_013014_01F	17		27		37	
8	RD-45A_013014_01F	18		28		38	
9	RD-45B_013014_01F	19		29	PBW1	39	
10	PZ-16G_013014_01F	20		30	PBW2	40	

Notes: Samples appended with "F" were analyzed as dissolved

More EBS

EB = EB-RD-07-020714 (SDG 280-51958-)  
 EB = EB-RD-07-020714F ( )

ID correction: PZ-016G







LDC #: 31380A4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 2,3,5,6 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: R

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Na		0.148		0.740										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 2-6

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	5	6								
Mo		0.000187		0.00094	0.00074	0.00067								

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 8-12

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	11	12								
Mo		0.000232		0.0012	0.00084	0.00071								

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

**N** N/A Were field blanks identified in this SDG?

**N** N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate (Other) EB **Associated Samples:** 4

Analyte	Blank ID	Blank ID	Sample Identification																
	FB_021214_19 sampled: 2/12/14	EB_RD-07_020714 sampled: 2/7/14	Action Level	4															
Sb		0.00044	0.0022																
Cr		0.00061	0.0030																
Cu		0.00078	0.0039																
Ni	0.00041		0.0020	0.00042															
Zn		0.0028	0.0140	0.0032															

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate (Other) EB **Associated Samples:** 10

Analyte	Blank ID	Blank ID	Sample Identification																
	FB_021214_19F sampled: 2/12/14	EB_RD-07_020714 F sampled: 2/7/14	Action Level	10															
Sb		0.00045	0.0022																
Cu		0.00080	0.0040																
Ni	0.00048		0.0024	0.00066															
Zn		0.0026	0.0130	0.0057															

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Arsenic	0.017	0.017	0	
Barium	0.045	0.046	2	
Boron	0.15	0.15	0	
Calcium	88	87	1	
Magnesium	17	17	0	
Manganese	0.0011	0.0011	0	
Molybdenum	0.00074	0.00067	10	
Nickel	0.0011	0.0011	0	
Potassium	3.4	3.4	0	
Sodium	36	36	0	
Strontium	0.29	0.29	0	
Zinc	0.013	0.014	7	

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	11	12		
Arsenic	0.018	0.018	0	
Barium	0.049	0.047	4	
Boron	0.15	0.15	0	
Calcium	87	88	1	
Magnesium	17	17	0	
Manganese	0.0011	0.00086	24	
Molybdenum	0.00084	0.00071	17	
Nickel	0.0014	0.0012	15	
Potassium	3.3	3.3	0	
Sodium	35	36	3	
Strontium	0.29	0.29	0	
Thallium	0.000062	0.000050U	21	
Zinc	0.016	0.014	13	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Herbicides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Herbicides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No herbicide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A5  
 SDG #: 280-51669-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC Herbicides (EPA SW 846 Method 8151A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V61	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *Water*

1	HAR-26_013014_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB 280-21184/1-A	30		40	

Notes: \_\_\_\_\_  
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## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

### Sample Identification

HAR-26\_013014\_01  
RD-45A\_013014\_01  
RD-45B\_013014\_01  
PZ-016G\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD  
RD-45B\_013014\_01DUP  
RD-77\_013014\_01DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Chloride, Fluoride, Nitrate as Nitrogen, Nitrate, and Sulfate, Standard Method 2510B for Conductivity, EPA SW 846 Method 9012A for Total Cyanide, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, Standard Method 4500 S2-D for Sulfide, Standard Method 2540C for Total Dissolved Solids, and EPA Method 180.1 for Turbidity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51669-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flags	A or P
	RD-77_013014_01	RD-77_013014_36			
Alkalinity	220 mg/L	220 mg/L	0 ( $\leq 35$ )	-	-
Chloride	36 mg/L	36 mg/L	0 ( $\leq 35$ )	-	-
Fluoride	0.28 mg/L	0.28 mg/L	0 ( $\leq 35$ )	-	-
Nitrate	15 mg/L	15 mg/L	0 ( $\leq 35$ )	-	-
pH	7.16 units	7.14 units	0 ( $\leq 35$ )	-	-
Specific conductance	640 umhos/cm	600 umhos/cm	6 ( $\leq 35$ )	-	-
Sulfate	74 mg/L	73 mg/L	1 ( $\leq 35$ )	-	-
Total dissolved solids	430 mg/L	430 mg/L	0 ( $\leq 35$ )	-	-
Turbidity	0.22 NTU	0.20U NTU	10 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 RD-45A_013014_01 RD-45B_013014_01 PZ-016G_013014_01 RD-77_013014_01 RD-77_013014_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A6  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

gms.  
 Nitrate,

**METHOD:** Alkalinity (SM2320B), Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate-N, Sulfate (EPA Method 300.0), Conductivity (SM2510B), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D), TDS (SM2540C), Turbidity (EPA Method 180.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-30-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP #10 OK by difference
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 5+6
XI	Field blanks	ND	EB = EB-RD-100-012414 (SDG: 280-51492-1) FB = FB-021214-19 (SDG: 280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

EB = EB-RD-07-020714 (SDG: 280-51958-1)  
 EB = EB-RD-109-021014 (SDG: 280-51987-1)

1	HAR-26_013014_01	11		21		31	
2	RD-45A_013014_01	12		22		32	
3	RD-45B_013014_01	13		23		33	
4	PZ-16G_013014_01	14		24		34	
5	RD-77_013014_01	15		25		35	
6	RD-77_013014_36	16		26		36	
7	RD-45B_013014_01MS	17		27		37	
8	RD-45B_013014_01MSD	18		28		38	
9	RD-45B_013014_01DUP	19		29	PBW1	39	
10	RD-77_013014_01DUP	20		30	PBW2	40	

Notes: ID correction PZ-016G  
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VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	5	6		
Alkalinity	220	220	0	
Chloride	36	36	0	
Fluoride	0.28	0.28	0	
Nitrate	15	15	0	
pH (pH units)	7.16	7.14	0	
Specific Conductance (umhos/cm)	640	600	6	
Sulfate	74	73	1	
TDS	430	430	0	
Turbidity (NTU)	0.22	0.20U	10	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** March 11, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

PZ-016G\_013014\_01  
TB\_PZ-016G\_013014

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB\_PZ-016G\_013014 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_PZ-016G_013014	1/30/14	TPH as gasoline (C6-C12)	24 ug/L	PZ-016G_013014_01

Sample FB\_201214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	1/30/14	TPH as gasoline (C6-C12)	17 ug/L	PZ-016G_013014_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
PZ-016G_013014_01	a,a,a-Trifluorotoluene	215 (82-110)	All TCL compounds	J (all detects)	P

#### VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

#### IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### X. System Performance

Raw data were not reviewed for this SDG.

#### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	PZ-016G_013014_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51669-1	PZ-016G_013014_01 TB_PZ-016G_013014	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A7  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: JVG

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/30/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	*
XIII.	Field blanks	SW	<u>TB=2</u> <u>FB = FB_021214_19 (280-52081-1)</u> <u>EB = EB_RD-07_020714 (280-51958-1)</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	<u>2</u> PZ-016G_013014_01	11		21		31	
2	<u>1</u> TB_PZ016G_013014	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>191 MB 280-210960/4</u>	29		39	
10		20	<u>202 MB 280-211366/4</u>	30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

RD-45A\_013014\_01  
RD-45B\_013014\_01  
PZ-016G\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as extractable contaminants were found.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS 280-211592/2-B	C <sub>15</sub> -C <sub>20</sub> C <sub>21</sub> -C <sub>30</sub>	117 (69-115) 116 (75-115)	All samples in SDG 280-51669-1	J (all detects) J (all detects)	P

### VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

### IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	RD-45A_013014_01 RD-45B_013014_01 PZ-016G_013014_01 RD-77_013014_01 RD-77_013014_36	C <sub>15</sub> -C <sub>20</sub> C <sub>21</sub> -C <sub>30</sub>	J (all detects) J (all detects)	P	Laboratory control samples (%R) (L)
280-51669-1	RD-45A_013014_01 RD-45B_013014_01 PZ-016G_013014_01 RD-77_013014_01 RD-77_013014_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A8  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: Th  
 2nd Reviewer: JG

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/30/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	SW	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D=4+5
XIII.	Field blanks	ND	FB = FB_021214_19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

EB = EB\_RD-07\_020714 (280-51958-1)  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-45A_013014_01	11		21		31	
2	RD-45B_013014_01	12		22		32	
3	PZ-016G_013014_01	13		23		33	
4	RD-77_013014_01	14		24		34	
5	RD-77_013014_36	15		25		35	
6	RD-45B_013014_01MS	16		26		36	
7	RD-45B_013014_01MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20	<u>MP 280-211592/1-B</u>	30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
TB\_HAR-26\_013014

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 504.1 for 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found in the method blanks.

Sample TB\_HAR-26\_013014 was identified as a trip blank. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Data Qualification Summary -  
SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 TB_HAR-26_013014	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Laboratory Blank Data  
Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Field Blank Data Qualification  
Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A10

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-3-14

SDG #: 280-51669-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc. Inc.

Reviewer: SM

2nd Reviewer: JV

**METHOD:** GC 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane (EPA Method 504.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

water

1	HAR-26_013014_01	11		21		31	
2	TB_HAR-26_013014	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-211584-A	29		39	
10		20		30		40	

Notes:

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Organophosphorus Pesticides

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8141A for Organophosphorus Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No organophosphorus pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. The percent recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A17

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-3-14

SDG #: 280-51669-1

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Organophosphorus Pesticides (EPA SW 846 Method 8141A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/30/14</u>
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	<u>client</u>
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-26 013014 01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	<u>MB 280-211160/1-A</u>	30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Explosives

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

RD-77\_013014\_01

RD-77\_013014\_36

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330A for Explosives.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
MB280-211195/1-A	2/3/14	RDX	0.102 ug/L	All samples in SDG 280-51669-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.



### VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

### IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No explosives were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	RD-77_013014_01 RD-77_013014_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A40  
 SDG #: 280-51669-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-14  
 Page: 1 of 1  
 Reviewer: *[Signature]*  
 2nd Reviewer: *[Signature]*

**METHOD:** HPLC Explosives (EPA SW 846 Method 8330A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	SW	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D=1+2
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	RD-77_013014_01	11		21		31	
2	RD-77_013014_36	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB 280-21195/FA	30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Hexachlorophene

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01

HAR-26\_013014\_01MS

HAR-26\_013014\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8321A for Hexachlorophene.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No hexachlorophene was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A44  
 SDG #: 280-51669-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: JV6

**METHOD:** LC/MS Hexachlorophene (EPA SW 846 Method 8321A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/30/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	<u>LCS</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinstate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	HAR-26_013014_01	11		21		31	
2	HAR-26_013014_01MS	12		22		32	
3	HAR-26_013014_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	<u>NB 280211072/9</u>	30		40	

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
RD-45A\_013014\_01  
RD-45B\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No formaldehyde was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 RD-45A_013014_01 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A71  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: *Orin*  
 2nd Reviewer: *JL*

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D=4+5
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*water*

1	HAR-26_013014_01	11		21		31	
2	RD-45A_013014_01	12		22		32	
3	RD-45B_013014_01	13		23		33	
4	RD-77_013014_01	14		24		34	
5	RD-77_013014_36	15		25		35	
6	RD-45B_013014_01MS	16		26		36	
7	RD-45B_013014_01MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB240-118302/8-A	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Hydrazines  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

RD-45A\_013014\_01  
RD-45B\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were not required by the method.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-45B_013014_01MS/MSD (RD-45B_013014_01)	1,1-Dimehtylhydrazine	78 (81-121)	75 (81-121)	-	J (all detects) UJ (all non-detects)	A

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

### IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51669-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No hydrazine was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51669-1	RD-45B_013014_01	1,1-Dimethylhydrazine	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51669-1	RD-45A_013014_01 RD-45B_013014_01 RD-77_013014_01 RD-77_013014_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A76  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: *sm*  
 2nd Reviewer: *JG*

**METHOD:** HPLC Hydrazines (EPA SW846 Method 8315A)  
*DV-WC-0077*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/30/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D=3+4
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

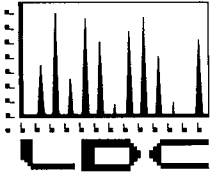
1	RD-45A_013014_01	11		21		31	
2	RD-45B_013014_01	12		22		32	
3	RD-77_013014_01	13		23		33	
4	RD-77_013014_36	14		24		34	
5	RD-45B_013014_01MS	15		25		35	
6	RD-45B_013014_01MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB 280-211785/25	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_









# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 18, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

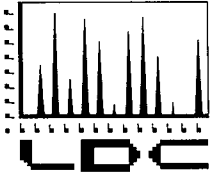
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31380:

<u>SDG #</u>	<u>Fraction</u>
280-51669-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51716-1	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51766-1	Chlorinated Pesticides, Polychlorinated Biphenyls, Metals,
280-51797-1	Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons
280-51799-1/H4B070408	as Gasoline, Total Petroleum Hydrocarbons as
280-51854-1	Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-
280-51855-1/H4B100402	chloropropane, Organophosphorus Pesticides, Explosives,
	Hexachlorophene, Formaldehyde, Hydrazines,
	Perchlorate, Nitrosodimethylamine, Pentachlorophenol,
	Fluoride, Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)							
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	8	0	8	0	8	0	5	0	4	0	-	-	-	-	2	0	6	0	6	0	6	0	1	0	2	0	5	0	2	0						
B	280-51716-1	02/24/14	03/17/14	10	0	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	3	0	3	0	-	-	-	-	3	0	-	-						
C	280-51766-1	02/24/14	03/17/14	9	0	5	0	5	0	2	0	5	0	3	0	1	0	1	0	6	0	6	0	6	0	3	0	5	0	6	0	2	0						
D	280-51797-1	02/24/14	03/17/14	4	0	2	0	2	0	1	0	2	0	1	0	-	-	-	-	1	0	2	0	2	0	1	0	-	-	2	0	-	-						
F	280-51854-1	02/24/14	03/17/14	13	0	2	0	-	-	-	-	1	0	-	-	-	-	-	-	-	-	9	0	9	0	-	-	-	-	1	0	-	-						
Total	T/PG			44	0	17	0	15	0	8	0	15	0	4	0	1	0	3	0	13	0	26	0	26	0	5	0	7	0	17	0	4	0	0	0	0	0	205	

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)		1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)																					
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	1	0	-	-	1	0	5	0	2	0	-	-	4	0	4	0	4	0																				
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-																				
C	280-51766-1	02/24/14	03/17/14	1	0	-	-	1	0	4	0	-	-	3	0	2	0	2	0	2	0																				
D	280-51797-1	02/24/14	03/17/14	-	-	-	-	-	-	4	0	1	0	1	0	1	0	1	0	1	0																				
E	280-51799-1/ H4B070408	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																					
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-																				
G	280-51855-1/ H4B100402	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																					
Total	T/PG			2	0	2	0	2	0	13	0	3	0	8	0	7	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	Aik. (2320B)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		NO <sub>2</sub> (300.0)		SO <sub>4</sub> (300.0)		Cond. (2510B)		Total CN- (9012A)		Cr(VI) (7196A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)		TDS (2540C)		Turb. (180.1)									
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	2	0	5	0	2	0	6	0	5	0	-	-	2	0	2	0	1	0	-	-	3	0	5	0	1	0	2	0	2	0	2	0						
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	1	0	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	280-51766-1	02/24/14	03/17/14	-	-	2	0	-	-	3	0	4	0	2	0	-	-	-	-	1	0	-	-	2	0	2	0	1	0	-	-	-	-	-	-	-	-	-	-	-	
D	280-51797-1	02/24/14	03/17/14	-	-	1	0	-	-	1	0	1	0	-	-	-	-	-	-	-	-	1	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	7	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	T/PG			2	0	8	0	3	0	17	0	12	0	2	0	2	0	2	0	2	0	1	0	6	0	8	0	2	0	2	0	2	0	2	0	0	0	0	0	71	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 31, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51716-1

**Sample Identification**

ES-29\_013114\_01  
TB\_ES-29\_013114  
WS-11\_013114\_01  
OS-25\_013114\_01  
TB\_OS-25\_013114  
OS-26\_013114\_01  
PZ-013F\_013114\_01  
TB\_PZ-013F\_013114  
PZ-018D\_013114\_01  
TB\_PZ-018D\_013114  
WS-11\_013114\_01MS  
WS-11\_013114\_01MSD

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-2117417	2/6/14	Methylene chloride	0.486 ug/L	PZ-018D_013114_01
MB 280-211936/5	2/7/14	Acetone	2.84 ug/L	ES-29_013114_01 TB_ES-29_013114 WS-11_013114_01 OS-25_013114_01 TB_OS-25_013114 OS-26_013114_01 PZ-013F_013114_01 TB_PZ-013F_013114 TB_PZ-018D_013114

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ES-29_013114_01	Acetone	2.2 ug/L	10U ug/L
TB_ES-29_013114	Acetone	2.5 ug/L	10U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
WS-11_013114_01	Acetone	1.9 ug/L	10U ug/L
TB_OS-25_013114	Acetone	3.2 ug/L	10U ug/L
PZ-013F_013114_01 (4X)	Acetone	31 ug/L	40U ug/L
TB_PZ-013F_013114	Acetone	2.0 ug/L	10U ug/L

Samples TB\_ES-29\_013114, TB\_OS-25\_013114, TB\_PZ-013F\_013114, and TB\_PZ-018D\_013114 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_ES-29_013114	1/31/14	Acetone	2.5 ug/L	ES-29_013114_01 WS-11_013114_01
TB_OS-25_013114	1/31/14	Acetone	3.2 ug/L	OS-25_013114_01 OS-26_013114_01
TB_PZ-013F_013114	1/31/14	Acetone	2.0 ug/L	PZ-013F_013114_01 PZ-018D_013114_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
ES-29_013114_01	Acetone	2.2 ug/L	10U ug/L
WS-11_013114_01	Acetone	1.9 ug/L	10U ug/L
PZ-018D_013114_01	Acetone	3.9 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
ES-29_013114_01	Dibromofluoromethane	120 (86-118)	All TCL compounds	J (all detects)	P
TB_ES-29_013114	Bromofluorobenzene	84 (86-115)	All TCL compounds	J (all detects) UJ (all non-detects)	P
OS-25_013114_01	Bromofluorobenzene	79 (86-115)	All TCL compounds	J (all detects) UJ (all non-detects)	P
OS-26_013114_01	Bromofluorobenzene	83 (86-115)	All TCL compounds	J (all detects) UJ (all non-detects)	P
TB_PZ-018D_013114	Bromofluorobenzene	85 (86-115)	All TCL compounds	J (all detects) UJ (all non-detects)	P

### VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
WS-11_013114_01MS/MSD (WS-11_013114_01)	1,1,1-Trichloroethane	-	-	21 ( $\leq 20$ )	J (all detects)	A
	1,1-Dichloroethene	-	-	21 ( $\leq 20$ )	J (all detects)	
	Carbon tetrachloride	-	-	22 ( $\leq 20$ )	J (all detects)	
	Methylene chloride	-	-	22 ( $\leq 20$ )	J (all detects)	
	Tetrachloroethene	-	-	22 ( $\leq 20$ )	J (all detects)	
	Trichlorofluoromethane	-	-	23 ( $\leq 20$ )	J (all detects)	

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.



## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51716-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51716-1	ES-29_013114_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51716-1	TB_ES-29_013114 OS-25_013114_01 OS-26_013114_01 TB_PZ-018D_013114	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
280-51716-1	WS-11_013114_01	1,1,1-Trichloroethane 1,1-Dichloroethene Carbon tetrachloride Methylene chloride Tetrachloroethene Trichlorofluoromethane	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (E)
280-51716-1	ES-29_013114_01 TB_ES-29_013114 WS-11_013114_01 OS-25_013114_01 TB_OS-25_013114 OS-26_013114_01 PZ-013F_013114_01 TB_PZ-013F_013114 PZ-018D_013114_01 TB_PZ-018D_013114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51716-1	ES-29_013114_01	Acetone	10U ug/L	A	B
280-51716-1	TB_ES-29_013114	Acetone	10U ug/L	A	B
280-51716-1	WS-11_013114_01	Acetone	10U ug/L	A	B
280-51716-1	TB_OS-25_013114	Acetone	10U ug/L	A	B
280-51716-1	PZ-013F_013114_01 (4X)	Acetone	40U ug/L	A	B
280-51716-1	TB_PZ-013F_013114	Acetone	10U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014**  
**Volatiles - Field Blank Data Qualification Summary - SDG 280-51716-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Modified Final Concentration</b>	<b>A or P</b>	<b>Code</b>
280-51716-1	ES-29_013114_01	Acetone	10U ug/L	A	T
280-51716-1	WS-11_013114_01	Acetone	10U ug/L	A	T
280-51716-1	PZ-018D_013114_01	Acetone	10U ug/L	A	T

LDC #: 31380B1a  
 SDG #: 280-51716-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: JTG  
 2nd Reviewer: JTG

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/31/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB=2,5,8,10

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	3	ES-29_013114_01	11	3	WS-11_013114_01MS	21		31	
2	3	TB_ES-29_013114	12	3	WS-11_013114_01MSD	22		32	
3	3	WS-11_013114_01	13			23		33	
4	3	OS-25_013114_01	14			24		34	
5	3	TB_OS-25_013114	15			25		35	
6	3	OS-26_013114_01	16			26		36	
7	3	PZ-013F_013114_01	17			27		37	
8	3	TB_PZ-013F_013114	18			28		38	1 MB280-211741/7
9	12	3 PZ-018D_013114_01	19			29		39	2 MB280-211935/5
10	3	TB_PZ-018D_013114	20			30		40	3 MB280-211936/5

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**

**Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a method blank associated with every sample in this SDG?
- N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
- N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 2/6/14

Conc. units: ng/L Associated Samples: 9 (B)

Compound	Blank ID	Sample Identification							
	MB 280- 211741/7	10x							
E	0.486	4.86							

Blank analysis date: 2/7/14

Conc. units: ng/L Associated Samples: 1-8, 10 (B)

Compound	Blank ID	Sample Identification							
	MB 280- 211936/8	10x	1	2	3	5	8	7 (4x)	
F	2.84	28.4	2.2/10u	2.5/10u	1.9/10u	3.2/10u	2.0/10u	31/40u	

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

N/A Were field blanks identified in this SDG?  
 N/A Were target compounds detected in the field blanks?

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 1, 3 (T)

Compound	Blank ID <u>2</u>		Sample Identification							
Sampling Date	<u>1/31/14</u>	<u>10x</u>	<u>1</u>	<u>3</u>						
<u>F</u>	<u>2.5</u>	<u>25</u>	<u>2.2/10u</u>	<u>1.9/10u</u>						

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 4, 6

Compound	Blank ID <u>5</u>		Sample Identification							
Sampling Date	<u>1/31/14</u>	<u>10x</u>								
<u>F</u>	<u>3.2</u>	<u>32</u>								

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 7, 9 (T)

Compound	Blank ID <u>8</u>		Sample Identification							
Sampling Date	<u>1/31/14</u>	<u>10x</u>	<u>9</u>							
<u>F</u>	<u>2.0</u>	<u>20</u>	<u>3.9/10u</u>							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 31, 2014

**LDC Report Date:** March 12, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51716-1

**Sample Identification**

ES-30\_013114\_01  
WS-11\_013114\_01  
PZ-018D\_013114\_01  
WS-11\_013114\_01MS  
WS-11\_013114\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-211082	2/3/14	Diethylphthalate	0.0626 ug/L	ES-30_013114_01 PZ-018D_013114_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
ES-30_013114_01	Diethylphthalate	0.093 ug/L	10U ug/L
PZ-018D_013114_01	Diethylphthalate	0.28 ug/L	10U ug/L

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51716-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field blanks were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51716-1	ES-30_013114_01 WS-11_013114_01 PZ-018D_013114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51716-1	ES-30_013114_01	Diethylphthalate	10U ug/L	A	B
280-51716-1	PZ-018D_013114_01	Diethylphthalate	10U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

LDC #: 31380B2b  
 SDG #: 280-51716-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/31/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	ES-30_013114_01	11		21		31	
2	WS-11_013114_01	12		22		32	
3	PZ-018D_013114_01	13		23		33	
4	WS-11_013114_01MS	14		24		34	
5	WS-11_013114_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-211082/1-A	29		39	
10		20		30		40	



## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 31, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51716-1

**Sample Identification**

ES-30\_013114\_01  
WS-11\_013114\_01  
PZ-018D\_013114\_01  
ES-30\_013114\_01F  
WS-11\_013114\_01F  
PZ-018D\_013114\_01F  
WS-11\_013114\_01MS  
WS-11\_013114\_01MSD  
WS-11\_013114\_01FMS  
WS-11\_013114\_01FMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.148 mg/L	ES-30_013114_01 PZ-018D_013114_01
PB (prep blank)	Molybdenum	0.000232 mg/L	ES-30_013114_01F WS-11_013114_01F PZ-018D_013114_01F

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For WS-11\_013114\_01MS/MSD, no data were qualified for Zinc percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51716-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51716-1	ES-30_013114_01 WS-11_013114_01 PZ-018D_013114_01 ES-30_013114_01F WS-11_013114_01F PZ-018D_013114_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

LDC #: 31380B4  
 SDG #: 280-51716-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: f

**METHOD:** Metals (EPA SW 846 Method 6020 ~~17000~~) 6010B/7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

X  
 XI  
 XII  
 XIII

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-31-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD #7/8: Zn-4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X	<del>Furnace Atomic Absorption QC</del>	<del>N</del>	<del>not utilized</del>
XI.	ICP Serial Dilution	A ✓	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	ES-30_013114_01	11		21		31	
2	WS-11_013114_01	12		22		32	
3	PZ-018D_013114_01	13		23		33	
4	ES-30_013114_01F	14		24		34	
5	WS-11_013114_01F	15		25		35	
6	PZ-018D_013114_01F	16		26		36	
7	WS-11_013114_01MS	17		27		37	
8	WS-11_013114_01MSD	18		28		38	
9	WS-11_013114_01FMS	19		29	PBW1	39	
10	WS-11_013114_01FMSD	20		30	PBW2	40	

Notes: Samples appended with "F" were analyzed as dissolved





LDC #: 31380B4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1,3 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Na		0.148		0.740										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 4-6 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Mo		0.000232		0.0012										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 31, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51716-1

**Sample Identification**

ES-29\_013114\_01  
WS-11\_013114\_01  
WS-11\_013114\_01MS  
WS-11\_013114\_01MSD  
WS-11\_013114\_01DUP

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride and Nitrate as Nitrogen.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51716-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51716-1	ES-29_013114_01 WS-11_013114_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

LDC #: 31380B6  
 SDG #: 280-51716-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: *[Signature]*

**METHOD:** Chloride, Nitrate-N, (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-31-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
*all water*

1	ES-29_013114_01	11		21		31	
2	WS-11_013114_01	12		22		32	
3	WS-11_013114_01MS	13		23		33	
4	WS-11_013114_01MSD	14		24		34	
5	WS-11_013114_01DUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 31, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51716-1

### Sample Identification

ES-30\_013114\_01  
WS-11\_013114\_01  
PZ-018D\_013114\_01  
WS-11\_013114\_01MS  
WS-11\_013114\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
WS-11_013114_01MS/MSD (WS-11_013114_01)	C <sub>15</sub> -C <sub>20</sub>	-	123 (69-115)	-	J (all detects)	A

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS 280-211592/2-B	C <sub>15</sub> -C <sub>20</sub> C <sub>21</sub> -C <sub>30</sub>	117 (69-115) 116 (75-115)	All samples in SDG 280-51716-1	J (all detects) J (all detects)	P

**VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

**IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51716-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51716-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51716-1	WS-11_013114_01	C <sub>15</sub> -C <sub>20</sub>	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51716-1	ES-30_013114_01 WS-11_013114_01 PZ-018D_013114_01	C <sub>15</sub> -C <sub>20</sub> C <sub>21</sub> -C <sub>30</sub>	J (all detects) J (all detects)	P	Laboratory control samples (%R) (L)
280-51716-1	ES-30_013114_01 WS-11_013114_01 PZ-018D_013114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

LDC #: 31380B8  
 SDG #: 280-51716-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-3-14  
 Page: 1 of 1  
 Reviewer: cm  
 2nd Reviewer: DVG

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/31/14</u>
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	SW	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	ES-30_013114_01	11		21		31	
2	WS-11_013114_01	12		22		32	
3	PZ-018D_013114_01	13		23		33	
4	WS-11_013114_01MS	14		24		34	
5	WS-11_013114_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>MB 280-211592/1-B</u>	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 31, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51716-1

**Sample Identification**

WS-11\_013114\_01

WS-11\_013114\_01MS

WS-11\_013114\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51716-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51716-1	WS-11_013114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

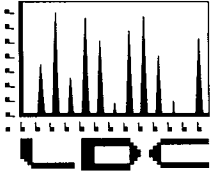
The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/31/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinstate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

1	WS-11_013114_01	11		21		31	
2	WS-11_013114_01MS	12		22		32	
3	WS-11_013114_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-211711/7	29		39	
10		20		30		40	



**LABORATORY DATA CONSULTANTS, INC.**  
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 18, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

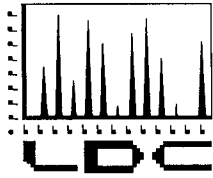
**LDC Project # 31380:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51669-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides, Explosives, Hexachlorophene, Formaldehyde, Hydrazines, Perchlorate, Nitrosodimethylamine, Pentachlorophenol, Fluoride, Dioxins/Dibenzofurans
280-51716-1	
280-51766-1	
280-51797-1	
280-51799-1/H4B070408	
280-51854-1	
280-51855-1/H4B100402	

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010





- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', written in a cursive style.

Pei Geng  
Project Manager/Senior Chemist

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)							
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	8	0	8	0	8	0	5	0	4	0	-	-	-	-	2	0	6	0	6	0	6	0	1	0	2	0	5	0	2	0						
B	280-51716-1	02/24/14	03/17/14	10	0	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	3	0	3	0	-	-	-	-	3	0	-	-						
C	280-51766-1	02/24/14	03/17/14	9	0	5	0	5	0	2	0	5	0	3	0	1	0	1	0	6	0	6	0	6	0	3	0	5	0	6	0	2	0						
D	280-51797-1	02/24/14	03/17/14	4	0	2	0	2	0	1	0	2	0	1	0	-	-	-	-	1	0	2	0	2	0	1	0	-	-	2	0	-	-						
F	280-51854-1	02/24/14	03/17/14	13	0	2	0	-	-	-	-	1	0	-	-	-	-	-	-	-	-	9	0	9	0	-	-	-	-	1	0	-	-						
Total	T/PG			44	0	17	0	15	0	8	0	15	0	4	0	1	0	3	0	13	0	26	0	26	0	5	0	7	0	17	0	4	0	0	0	0	0	205	

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)		1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)																					
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	1	0	-	-	1	0	5	0	2	0	-	-	4	0	4	0	4	0																				
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-																				
C	280-51766-1	02/24/14	03/17/14	1	0	-	-	1	0	4	0	-	-	3	0	2	0	2	0	2	0																				
D	280-51797-1	02/24/14	03/17/14	-	-	-	-	-	-	4	0	1	0	1	0	1	0	1	0	1	0																				
E	280-51799-1/ H4B070408	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																					
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-																				
G	280-51855-1/ H4B100402	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																					
Total	T/PG			2	0	2	0	2	0	13	0	3	0	8	0	7	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	Aik. (2320B)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		NO <sub>2</sub> (300.0)		SO <sub>4</sub> (300.0)		Cond. (2510B)		Total CN- (9012A)		Cr(VI) (7196A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)		TDS (2540C)		Turb. (180.1)									
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	2	0	5	0	2	0	6	0	5	0	-	-	2	0	2	0	1	0	-	-	3	0	5	0	1	0	2	0	2	0	2	0						
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	1	0	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	280-51766-1	02/24/14	03/17/14	-	-	2	0	-	-	3	0	4	0	2	0	-	-	-	-	1	0	-	-	2	0	2	0	1	0	-	-	-	-	-	-	-	-	-	-	-	
D	280-51797-1	02/24/14	03/17/14	-	-	1	0	-	-	1	0	1	0	-	-	-	-	-	-	-	-	1	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	7	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	T/PG			2	0	8	0	3	0	17	0	12	0	2	0	2	0	2	0	2	0	1	0	6	0	8	0	2	0	2	0	2	0	2	0	0	0	0	0	71	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
RD-84\_020314\_01  
HAR-01\_020314\_01  
TB\_HAR-01\_020314  
C-1\_020314\_01  
RD-35B\_020314\_01  
TB\_RD-35B\_020314  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-212399/5	2/11/14	Acetone	2.06 ug/L	RD-37_020314_01 HAR-01_020314_01 TB_HAR-01_020314 C-1_020314_01 RD-35B_020314_01 TB_RD-35B_020314 RD-73_020314_01 RD-73_020314_36
MB 280-212603/5	2/12/14	Acetone	5.18 ug/L	RD-84_020314_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
RD-37_020314_01	Acetone	2.8 ug/L	10U ug/L
HAR-01_020314_01	Acetone	2.2 ug/L	10U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TB_HAR-01_020314	Acetone	2.7 ug/L	10U ug/L
C-1_020314_01 (50X)	Acetone	130 ug/L	500U ug/L
RD-35B_020314_01 (10X)	Acetone	19 ug/L	100U ug/L
TB_RD-35B_020314	Acetone	2.9 ug/L	10U ug/L

Samples TB\_HAR-01\_020314 and TB\_RD-35B\_020314 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_HAR-01_020314	2/3/14	Acetone	2.7 ug/L	HAR-01_020314_01
TB_RD-35B_020314	2/3/14	Acetone	2.9 ug/L	C-1_020314_01 RD-35B_020314_01 RD-73_020314_01 RD-73_020314_36

Samples EB\_RD-07\_020714 (from SDG 280-51958-1) and EB\_RD-100\_012414 (from SDG 280-514-92-1) were identified as equipment blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36
EB_RD-100_012414	1/24/14	Chloroform	0.51 ug/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36

Sample FB\_021214\_19 (from SDG 280-52081-1) were identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-01_020314_01	Acetone	2.2 ug/L	10U ug/L
RD-35B_020314_01	Acetone	19 ug/L	100U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-37_020314_01	Toluene-d8	112 (88-110)	All TCL compounds	J (all detects)	P
HAR-01_020314_01	1,2-Dichloroethane-d4	79 (80-120)	All TCL compounds except Trichloroethene Acrolein Acrylonitrile	J (all detects) UJ (all non-detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
HAR-01_020314_01MS/MSD (HAR-01_020314_01)	1,1,1,2-Tetrachloroethane	72 (73-135)	-	-	J (all detects) UJ (all non-detects)	A
	1,2-Dichlorobenzene	73 (75-135)	-	-		
	1,4-Dichlorobenzene	73 (75-135)	-	-		
	Chlorobenzene	73 (76-135)	-	-		
	cis-1,3-Dichloropropene	63 (66-135)	-	-		

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flags	A or P
	RD-73_020314_01	RD-73_020314_36			
1,1-Dichloroethane	16	16	0 (≤35)	-	-
1,1-Dichloroethene	180	180	0 (≤35)	-	-



Compound	Concentration (ug/L)		RPD (Limits)	Flags	A or P
	RD-73_020314_01	RD-73_020314_36			
1,2-Dichloroethane	2.6U	5.0	63 ( $\leq 35$ )	NQ	-
Benzene	6.7	7.0	4 ( $\leq 35$ )	-	-
Chloroform	3.2U	2.6	21 ( $\leq 35$ )	-	-
cis-1,2-Dichloroethene	210	210	0 ( $\leq 35$ )	-	-
Vinyl chloride	7.2	7.3	1 ( $\leq 35$ )	-	-
Trichloroethene	1700	1700	0 ( $\leq 35$ )	-	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51766-1	HAR-01_020314_01	All TCL compounds except Trichloroethene Acrolein Acrylonitrile	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-51766-1	HAR-01_020314_01	1,1,1,2-Tetrachloroethane 1,2-Dichlorobenzene 1,4-Dichlorobenzene Chlorobenzene cis-1,3-Dichloropropene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51766-1	RD-37_020314_01 RD-84_020314_01 HAR-01_020314_01 TB_HAR-01_020314 C-1_020314_01 RD-35B_020314_01 TB_RD-35B_020314 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51766-1	RD-37_020314_01	Acetone	10U ug/L	A	B
280-51766-1	HAR-01_020314_01	Acetone	10U ug/L	A	B
280-51766-1	TB_HAR-01_020314	Acetone	10U ug/L	A	B
280-51766-1	C-1_020314_01 (50X)	Acetone	500U ug/L	A	B
280-51766-1	RD-35B_020314_01 (10X)	Acetone	100U ug/L	A	B
280-51766-1	TB_RD-35B_020314	Acetone	10U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
 Volatiles - Field Blank Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51766-1	HAR-01_020314_01	Acetone	10U ug/L	A	T
280-51766-1	RD-35B_020314_01	Acetone	100U ug/L	A	T

LDC #: 31380C1a  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Jr  
 2nd Reviewer: JV

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/3/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D=8+9
XVII.	Field blanks	SW	TB=4,7 FB = FB-021219-19 (280-52081-1) EB = EB-RD-07-020714 (280-51958-1) ↓ = EB-RD-100_012414 (280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-37_020314_01	2	11	HAR-01_020314_01MSD	1,2	21		31	
2	RD-84_020314_01	1,3	12			22		32	
3	HAR-01_020314_01	1,2	13			23		33	
4	TB_HAR-01_020314	1,2	14			24		34	
5	C-1_020314_01	2	15			25		35	
6	RD-35B_020314_01	2	16			26		36	
7	TB_RD-35B_020314	2	17			27		37	
8	RD-73_020314_01	2	18			28	MB 280-212162	38	
9	RD-73_020314_36	2	19			29	MB 280-212399	39	
10	HAR-01_020314_01MS	1,2	20			30	3 MB 280-212603	40	

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a method blank associated with every sample in this SDG?
- N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
- N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 2/11/14

Conc. units: mg/L Associated Samples: 1, 3-9 (B)

Compound	Blank ID	Sample Identification							
	MB 280-212399/5	10x	1	3	4	5 (50x)	6 (10x)	7	
F	2.06	20.6	2.8/10u	2.2/10u	2.7/10u	130/500u	19/100u	2.9/10u	

Blank analysis date: 2/12/14

Conc. units: mg/L Associated Samples: 2

Compound	Blank ID	Sample Identification							
	MB 280-212603/5	10x							
F	5.18	5.8							

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

- N/A Were field blanks identified in this SDG?  
 N/A Were target compounds detected in the field blanks?

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 3 (T)

Compound	Blank ID <u>4</u>		Sample Identification						
Sampling Date	<u>2/3/14</u>	<u>10x</u>	<u>3</u>						
<u>F</u>	<u>2.7</u>	<u>27</u>	<u>2.2/10u</u>						

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 5-6, 8-9 (T)

Compound	Blank ID <u>7</u>		Sample Identification						
Sampling Date	<u>2/3/14</u>	<u>10x</u>	<u>6</u>						
<u>F</u>	<u>2.9</u>	<u>29</u>	<u>19/100u</u>						

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: FB/EB Associated Samples: 5, 8, 9 (either ND or >5x10x)

Compound	Blank ID	<u>FB_021214-19</u>	<u>EB_RD-100-012414</u>	<u>EB_RD-07-020714</u>	Sample Identification				
Sampling Date	<u>—</u>	<u>2/12/14</u>	<u>1/24/14</u>	<u>2/7/14</u>					
<u>K</u>	<u>—</u>	<u>0.50</u>	<u>0.51</u>						
<u>F</u>	<u>—</u>			<u>2.0</u>					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".







VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: GCMS VOA (EPA SW 846 Method 8260B)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	8	9		
I	16	16	0	--
H	180	180	0	--
L	2.6U	5.0	63	NQ
V	6.7	7.0	4	--
K	3.2U	2.6	21	--
QQQ	210	210	0	--
C	7.2	7.3	1	--
S	1700	1700	0	--

NQ=NoQual <5x RL

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

RD-37\_020314\_01  
HAR-01\_020314\_01  
TB\_HAR-01\_020314  
RD-35B\_020314\_01  
TB\_RD-35B\_020314  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_HAR-01\_020314 and TB\_RD-35B\_020314 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01 HAR-01_020314_01 TB_HAR-01_020314 RD-35B_020314_01 TB_RD-35B_020314	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C1b  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: cm  
 2nd Reviewer: NV

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB=3,5

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	2	RD-37_020314_01	11		21		31	
2	1	HAR-01_020314_01	12		22		32	
3	1	TB_HAR-01_020314	13		23		33	
4	2	RD-35B_020314_01	14		24		34	
5	1	TB_RD-35B_020314	15		25		35	
6	1	HAR-01_020314_01MS	16		26		36	
7	1	HAR-01_020314_01MSD	17		27		37	
8			18		28		38	
9			19	1	MB280-211944		29	
10			20	2	MB280-212167		30	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
HAR-01\_020314\_01  
TB\_HAR-01\_020314  
RD-35B\_020314\_01  
TB\_RD-35B\_020314  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Samples TB\_HAR-01\_020314 and TB\_RD-35B\_020314 were identified as trip blanks. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01 HAR-01_020314_01 TB_HAR-01_020314 RD-35B_020314_01 TB_RD-35B_020314	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C1c  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-11-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: JVG

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB=3,5

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-37_020314_01	11		21		31
2	HAR-01_020314_01	12		22		32
3	TB_HAR-01_020314	13		23		33
4	RD-35B_020314_01	14		24		34
5	TB_RD-35B_020314	15		25		35
6	HAR-01_020314_01MS	16		26		36
7	HAR-01_020314_01MSD	17		27		37
8		18		28		38
9		19	MBL10-160-110/3	29		39
10		20		30		40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 11, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

RD-37\_020314\_01  
HAR-01\_020314\_01  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51766-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51766-1	RD-37_020314_01 HAR-01_020314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C2a  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: JTG  
 2nd Reviewer: JTG

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/3/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	<del>N</del> A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-37_020314_01	11		21		31	
2	HAR-01_020314_01	12		22		32	
3	HAR-01_020314_01MS	13		23		33	
4	HAR-01_020314_01MSD	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB 280-2 11652	30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 12, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

RD-37\_020314\_01  
RD-84\_020314\_01  
C-1\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-212081	2/7/14	Di-n-octylphthalate	0.0349 ug/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No semivolatile contaminants were found.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. Surrogate recoveries (%R) were not within QC limits for sample C-1\_020314\_01. Since the samples were diluted greater than 5X, no data were qualified.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.



## XVI. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_0	RD-73_020314_36			
Fluorene	0.019	0.018U	5 ( $\leq 35$ )	-	-
1-Methylnaphthalene	0.11	0.099	11 ( $\leq 35$ )	-	-
Naphthalene	0.11	0.12	9 ( $\leq 35$ )	-	-
Bis(2-ethylhexyl)phthalate	0.18	0.51	96 ( $\leq 35$ )	NQ	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01 RD-84_020314_01 C-1_020314_01 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C2b  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: *TM*  
 2nd Reviewer: *JV*

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards		
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D=4+5
XVII.	Field blanks	ND	FB = FB_02/21/14-19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	RD-37_020314_01	11		21		31	
2	RD-84_020314_01	12		22		32	
3	C-1_020314_01	13		23		33	
4	RD-73_020314_01	14		24		34	
5	RD-73_020314_36	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB280-212081	29		39	
10		20		30		40	

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.





VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: GCMS SVOA (EPA SW 846 Method 8270C-SIM)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	4	5		
NN	0.019	0.018U	5	--
TTT	0.11	0.099	11	--
S	0.11	0.12	9	--
EEE	0.18	0.51	96	NQ

NQ=NoQual &lt;5x RL

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 11, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

RD-37\_020314\_01  
HAR-01\_020314\_01  
RD-35B\_020314\_01  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD



## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-35B_020314_01	N-Nitrosodimethylamine	155 (18-142)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-35B_020314_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51766-1	RD-37_020314_01 HAR-01_020314_01 RD-35B_020314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C2c  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: *Jm*  
 2nd Reviewer: *JV6*

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 4625C) *SW 816 827013-SIM*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

1	1	RD-37_020314_01	11		21		31
2	2	HAR-01_020314_01	12		22		32
3	1	RD-35B_020314_01	13		23		33
4	2	HAR-01_020314_01MS	14		24		34
5	2	HAR-01_020314_01MSD	15		25		35
6			16		26		36
7			17		27		37
8			18		28		38
9			19	MB 280-211653	29		39
10			20	MB 280-212334	30		40



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 12, 2014

**Matrix:** Water

**Parameters:** Pentachlorophenol

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

HAR-01\_020314\_01  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Pentachlorophenol.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No pentachlorophenol was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Pentachlorophenol - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Pentachlorophenol - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Pentachlorophenol - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS Pentachlorophenol (EPA SW846 Method 8270C )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *Water*

1	HAR-01_020314_01	11		21		31	
2	HAR-01_020314_01MS	12		22		32	
3	HAR-01_020314_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-212156	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

HAR-01\_020314\_01  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
HAR-01_020314_01	Not specified	Tetrachloro-m-xylene	55 (60-140)	All TCL compounds	J (all detects) UJ (all non-detects)	A
MB 280-212322	Not specified	Tetrachloro-m-xylene	55 (60-140)	All TCL compounds	J (all detects) UJ (all non-detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

### XI. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

### XII. Target Compound Identification

Raw data were not reviewed for this SDG.

### XIII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XV. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01	All TCL compounds	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-51766-1	HAR-01_020314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C3a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-4-14

SDG #: 280-51766-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: *JM*2nd Reviewer: *JVB***METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: *Water*

1	HAR-01_020314_01	11		21		31	
2	HAR-01_020314_01MS	12		22		32	
3	HAR-01_020314_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB 280-212322	30		40	

### VALIDATION FINDINGS WORKSHEET

#### Surrogate Spikes

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081A/8082A)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as N/A.

N N/A Were surrogates spiked into all samples, standards and blanks?

N N/A Were all DCB surrogate recoveries within advisory QC limits on each column.

**Level I/II ONLY**

N N/A Were surrogate retention times (RTs) on each column within the established RT windows for all samples, standards and blanks?

#	Date	Lab ID/Reference	Column	Surrogate %R (Limits: )		Associated Samples	Qualifications
				TCMX	DCB		
			NS	55 (60-140)		1	J/W/A (S)
			NS	55 (60-140)		MB 280-212322	J/W/P (S)

TCX = Tetrachloro-m-xylene  
 DCB = Decachlorobiphenyl

Comments: \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
RD-84\_020314\_01  
HAR-01\_020314\_01  
C-1\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No polychlorinated biphenyl contaminants were found.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-37_020314_01	Not specified	Decachlorobiphenyl	30 (45-120)	All TCL compounds	J (all detects) UJ (all non-detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

**IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

**XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

**XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

**XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
280-51766-1	RD-37_020314_01 RD-84_020314_01 HAR-01_020314_01 C-1_020314_01 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG  
280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-  
51766-1**

No Sample Data Qualified in this SDG



LDC #: 31380C3b

## VALIDATION COMPLETENESS WORKSHEET

Date: 3-4-14

SDG #: 280-51766-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: *jm*2nd Reviewer: *JN*

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	ND	D = 5 + 6
XVI.	Field blanks	ND	FB = FB-021214-19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: *Water*

1	RD-37_020314_01	11		21		31	
2	RD-84_020314_01	12		22		32	
3	HAR-01_020314_01	13		23		33	
4	C-1_020314_01	14		24		34	
5	RD-73_020314_01	15		25		35	
6	RD-73_020314_36	16		26		36	
7	HAR-01_020314_01MS	17		27		37	
8	HAR-01_020314_01MSD	18		28		38	
9		19	MB280-2120914	29		39	
10		20		30		40	

Notes:

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Spikes**

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081A/8082A)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as N/A.

- N N/A Were surrogates spiked into all samples, standards and blanks?  
 N N/A Were all DCB surrogate recoveries within advisory QC limits on each column.

**Level IV/D ONLY**

N  N/A Were surrogate retention times (RTs) on each column within the established RT windows for all samples, standards and blanks?

#	Date	Lab ID/Reference	Column	Surrogate %R (Limits: )		Associated Samples	Qualifications
				TCMX	DCB		
			NS		30(45-120)	1	J/UJ/P (S)

TCX = Tetrachloro-m-xylene  
 DCB = Decachlorobiphenyl

Comments: \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 3, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

RD-37_020314_01	C-1_020314_01MS
RD-84_020314_01	C-1_020314_01MSD
HAR-01_020314_01	
C-1_020314_01	
RD-73_020314_01	
RD-73_020314_36	
RD-37_020314_01F	
RD-84_020314_01F	
HAR-01_020314_01F	
C-1_020314_01F	
RD-73_020314_01F	
RD-73_020314_36F	
HAR-01_020314_01MS	
HAR-01_020314_01MSD	
C-1_020314_01MS	
C-1_020314_01MSD	
HAR-01_020314_01FMS	
HAR-01_020314_01FMSD	
C-1_020314_01FMS	
C-1_020314_01FMSD	

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 22 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Zinc	0.00210 mg/L	RD-37_020314_01F RD-84_020314_01F HAR-01_020314_01F C-1_020314_01F RD-73_020314_01F RD-73_020314_36F

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-37_020314_01F	Zinc	0.0052 mg/L	0.0052U mg/L
C-1_020314_01F	Zinc	0.0049 mg/L	0.0049U mg/L

Samples EB\_RD-100\_012414, EB\_RD-100\_012414F (both from SDG 280-51492-1), EB\_RD-07\_020714, and EB\_RD-07\_020714F (both from SDG 280-51958-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Magnesium Sodium	0.27 mg/L 3.1 mg/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36
EB_RD-100_012414F	1/24/14	Sodium	0.24 mg/L	C-1_020314_01F RD-73_020314_01F RD-73_020314_36F
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	C-1_020314_01F RD-73_020314_01F RD-73_020314_36F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel Sodium	0.00041 mg/L 0.12 mg/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36
FB_021214_19F	2/12/14	Magnesium Manganese Nickel Sodium	0.020 mg/L 0.00038 mg/L 0.00048 mg/L 0.13 mg/L	C-1_020314_01F RD-73_020314_01F RD-73_020314_36F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
C-1_020314_01F	Antimony Zinc	0.00041 mg/L 0.0049 mg/L	0.00041U mg/L 0.0049U mg/L
RD-73_020314_01F	Nickel	0.0023 mg/L	0.0023U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For HAR-01\_020314\_01MS/MSD and HAR-01\_020314\_01FMS/MSD, no data were qualified for Zinc and for C-1\_020314\_01MS/MSD, no data were qualified for Manganese percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
HAR-01_020314_01F	Barium	12 ( $\leq 10$ )	RD-37_020314_01F RD-84_020314_01F HAR-01_020314_01F C-1_020314_01F RD-73_020314_01F RD-73_020314_36F	J (all detects) UJ (all non-detects)	A

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51766-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 and samples RD-73\_020314\_01F and RD-73\_020314\_36F were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01	RD-73_020314_36			
Arsenic	0.0014	0.0014	0 (≤35)	-	-
Barium	0.065	0.065	0 (≤35)	-	-
Boron	0.36	0.35	3 (≤35)	-	-
Cadmium	0.00013	0.00013	0 (≤35)	-	-
Cobalt	0.0011	0.0011	0 (≤35)	-	-
Iron	4.5	4.7	4 (≤35)	-	-
Lead	0.00081	0.00084	4 (≤35)	-	-
Magnesium	30	29	3 (≤35)	-	-
Manganese	1.3	1.3	0 (≤35)	-	-
Molybdenum	0.0028	0.0028	0 (≤35)	-	-
Nickel	0.0026	0.0022	17 (≤35)	-	-
Sodium	89	87	2 (≤35)	-	-
Thallium	0.000080	0.000050U	46 (≤35)	NQ	-
Vanadium	0.00092	0.00094	2 (≤35)	-	-
Zinc	0.20	0.21	5 (≤35)	-	-



Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01F	RD-73_020314_36F			
Barium	0.058	0.059	2 (≤35)	-	-
Boron	0.36	0.35	3 (≤35)	-	-
Cobalt	0.0012	0.0010	18 (≤35)	-	-
Magnesium	31	30	3 (≤35)	-	-
Manganese	1.4	1.4	0 (≤35)	-	-
Molybdenum	0.0028	0.0030	7 (≤35)	-	-
Nickel	0.0023	0.0026	12 (≤35)	-	-
Sodium	89	86	3 (≤35)	-	-
Vanadium	0.00054	0.00074	31 (≤35)	-	-
Zinc	0.11	0.11	0 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01F RD-84_020314_01F HAR-01_020314_01F C-1_020314_01F RD-73_020314_01F RD-73_020314_36F	Barium	J (all detects) UJ (all non-detects)	A	ICP serial dilution (%D) (A)
280-51766-1	RD-37_020314_01 RD-84_020314_01 HAR-01_020314_01 C-1_020314_01 RD-73_020314_01 RD-73_020314_36 RD-37_020314_01F RD-84_020314_01F HAR-01_020314_01F C-1_020314_01F RD-73_020314_01F RD-73_020314_36F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51766-1	RD-37_020314_01F	Zinc	0.0052U mg/L	A	B
280-51766-1	C-1_020314_01F	Zinc	0.0049U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51766-1	C-1_020314_01F	Antimony Zinc	0.00041U mg/L 0.0049U mg/L	A	F
280-51766-1	RD-73_020314_01F	Nickel	0.0023U mg/L	A	F

LDC #: 31380C4  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Metals (EPA SW 846 Method 6020 ~~17000~~ 6010B/7470A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-3-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis <i>9m/d</i>	<del>SW</del> A	MS/MSD #13,14,17,18: Zn-4x ; # 21, 22: Mn-4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
<del>X.</del>	<del>Furnace Atomic Absorption QC</del>	<del>N</del>	<del>not utilized</del>
XI.	ICP Serial Dilution	<del>SW</del>	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	SW	D = 5+6 D = 11+12
XV.	Field Blanks	SW	EB = EB-RD-100-012414 (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
*all water*

EB = EB-RD-100-012414F ( )  
 FB = FB-021214-19 (SDG: 280-52081-1)  
 FB = FB-021214-19F ( )

1 <sup>1</sup>	RD-37_020314_01	11 <sup>2</sup>	RD-73_020314_01F	21 <sup>3</sup>	#4 MS	31	
2 <sup>1</sup>	RD-84_020314_01	12 <sup>2</sup>	RD-73_020314_36F	22 <sup>3</sup>	#4 MSD	32	
3 <sup>1</sup>	HAR-01_020314_01	13 <sup>1</sup>	HAR-01_020314_01MS	23		33	
4 <sup>1 3</sup>	C-1_020314_01	14 <sup>1</sup>	HAR-01_020314_01MSD	24		34	
5 <sup>1</sup>	RD-73_020314_01	15 <sup>1</sup>	C-1_020314_01MS	25		35	
6 <sup>1</sup>	RD-73_020314_36	16 <sup>1</sup>	C-1_020314_01MSD	26		36	
7 <sup>2</sup>	RD-37_020314_01F	17 <sup>2</sup>	HAR-01_020314_01FMS	27		37	
8 <sup>2</sup>	RD-84_020314_01F	18 <sup>2</sup>	HAR-01_020314_01FMSD	28		38 <sup>1</sup>	PBW1
9 <sup>2</sup>	HAR-01_020314_01F	19 <sup>2</sup>	C-1_020314_01FMS	29		39 <sup>2</sup>	PBW2
10 <sup>2</sup>	C-1_020314_01F	20 <sup>2</sup>	C-1_020314_01FMSD	30		40 <sup>3</sup>	PBW3 (6000)

Notes: Samples appended with "F" were analyzed as dissolved

*more EBs*

EB = EB-RD-07-020714 (SDG: 280-51958-)  
 EB = EB-RD-07-020714F ( )



LDC #: 31380C4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 7-12

Page: 1 of 1

Reviewer: MG

2nd Reviewer: R

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	7	10								
Zn		0.00210		0.0105	0.0052	0.0049								

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N N/A Were field blanks identified in this SDG?

N N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB **Associated Samples:** 4-6 (>5x or ND)

Analyte	Blank ID	Blank ID	Blank ID	Sample Identification									
	EB_RD-100_012414 sampled: 1/24/14	FB_021214_19 sampled: 2/12/14	EB_RD-07_020714 sampled: 2/7/14	Action Level	No Qual's.								
Sb			0.00044	0.0022									
Cr			0.00061	0.0030									
Cu			0.00078	0.0039									
Mg	0.27			1.35									
Ni		0.00041		0.0020									
Na	3.1	0.12		15.5									
Zn			0.0028	0.0140									

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB **Associated Samples:** 10-12

Analyte	Blank ID	Blank ID	Blank ID	Sample Identification									
	EB_RD-100_012414F sampled: 1/24/14	FB_021214_19F sampled: 2/12/14	EB_RD-07_020714F sampled: 2/7/14	Action Level	10	11							
Sb			0.00045	0.0022	0.00041								
Cu			0.00080	0.0040									
Mg		0.020		0.100									
Mn		0.00038		0.0019									
Ni		0.00048		0.0024		0.0023							
Na	0.24	0.13		1.20									
Zn			0.0026	0.0130	0.0049								



**VALIDATION FINDINGS WORKSHEET**  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Arsenic	0.0014	0.0014	0	
Barium	0.065	0.065	0	
Boron	0.36	0.35	3	
Cadmium	0.00013	0.00013	0	
Cobalt	0.0011	0.0011	0	
Iron	4.5	4.7	4	
Lead	0.00081	0.00084	4	
Magnesium	30	29	3	
Manganese	1.3	1.3	0	
Molybdenum	0.0028	0.0028	0	
Nickel	0.0026	0.0022	17	
Sodium	89	87	2	
Thallium	0.000080	0.000050U	46	No Qual.
Vanadium	0.00092	0.00094	2	
Zinc	0.20	0.21	5	



Method: Metals

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	11	12		
Barium	0.058	0.059	2	
Boron	0.36	0.35	3	
Cobalt	0.0012	0.0010	18	
Magnesium	31	30	3	
Manganese	1.4	1.4	0	
Molybdenum	0.0028	0.0030	7	
Nickel	0.0023	0.0026	12	
Sodium	89	86	3	
Vanadium	0.00054	0.00074	31	
Zinc	0.11	0.11	0	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Herbicides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

HAR-01\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Herbicides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No herbicide contaminants were found in the method blanks.

Sample FB\_021219\_19 (from SDG 280-52081-1) was identified as a field blank. No herbicide contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No herbicides were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flags	A or P
	RD-73_020314_01	RD-73_020314_36			
MCPPP	57	71	22 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C5  
 SDG #: 280-51766-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: JM  
 2nd Reviewer: JVL

**METHOD:** GC Herbicides (EPA SW 846 Method 8151A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V61	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	SW	D=2+3
XIII.	Field blanks	ND	FB = FB-021219-19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	HAR-01_020314_01	11		21		31	
2	RD-73_020314_01	12		22		32	
3	RD-73_020314_36	13		23		33	
4	HAR-01_020314_01MS	14		24		34	
5	HAR-01_020314_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB280-212195	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
Field Duplicates

Method: GC Herbicides (EPA SW 846 Method 8151A)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	2	3		
MCP	57	71	22	--



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
HAR-01\_020314\_01  
C-1\_020314\_01  
RD-35B\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD  
HAR-01\_020314\_01DUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Fluoride, Nitrate as Nitrogen, and Nitrite, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, EPA SW 846 Method 9012A for Cyanide, and Standard Method 4500 S2 D for Sulfide.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Cyanide	0.00246 mg/L	HAR-01_020314_01

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
HAR-01_020314_01MS/MSD (HAR-01_020314_01)	Sulfide	78 (83-112)	78 (83-112)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51766-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01	RD-73_020314_36			
Nitrate as N	5.2	4.9	6 ( $\leq 35$ )	-	-
Nitrite	0.59	0.57	3 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01	Sulfide	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51766-1	RD-37_020314_01 HAR-01_020314_01 C-1_020314_01 RD-35B_020314_01 RD-73_020314_01 RD-73_020314_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C6  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Ammonia-N (EPA Method 350.1), Fluoride, Nitrate-N, Nitrite (EPA Method 300.0), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-3-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	SW	
V	Matrix Spike/Matrix Spike Duplicates <sup>9MB</sup>	SWA	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D=5+6
XI	Field blanks	ND	EB = EB-RD-100-017414 (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

FB = FB-021214-19 (SDG: 280-52081-1)

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

EB = EB-RD-07-020714 (SDG: 280-51958-1)

EB = EB-RD-109-021014 (SDG: 280-51987-1)

1	RD-37_020314_01	11		21		31	
2	HAR-01_020314_01	12		22		32	
3	C-1_020314_01	13		23		33	
4	RD-35B_020314_01	14		24		34	
5	RD-73_020314_01	15		25		35	
6	RD-73_020314_36	16		26		36	
7	HAR-01_020314_01MS	17		27		37	
8	HAR-01_020314_01MSD	18		28		38	
9	HAR-01_020314_01DUP	19		29	PBW1	39	
10		20		30	PBW2	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 2 (ND)

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		No Qual.											
CN	0.00246		0.0123												


CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".





VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

2nd Reviewer: 

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Nitrate as N	5.2	4.9	6	
Nitrite	0.59	0.57	3	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 3, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

RD-37\_020314\_01  
RD-84\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
TB\_RD-73\_020314  
RD-84\_020314\_01MS  
RD-84\_020314\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB\_RD-73\_020314 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	C <sub>6</sub> -C <sub>12</sub>	17 ug/L	RD-73_020314_01 RD-73_020314_36

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-84_020314_01	a,a,a-Trifluorotoluene	0 (82-110)	All TCL compounds	J (all detects) R (all non-detects)	A
RD-73_020314_01	a,a,a-Trifluorotoluene	0 (82-110)	All TCL compounds	J (all detects) R (all non-detects)	P
RD-73_020314_36	a,a,a-Trifluorotoluene	0 (82-110)	All TCL compounds	J (all detects) R (all non-detects)	P

The analyte and surrogate co-elution resulted in the inability to quantify a percent recovery.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01	RD-73_020314_36			
C <sub>6</sub> -C <sub>12</sub>	1100	1100	0 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-84_020314_01	All TCL compounds	J (all detects) R (all non-detects)	A	Surrogate spikes (%R) (S)
280-51766-1	RD-73_020314_01 RD-73_020314_36	All TCL compounds	J (all detects) R (all non-detects)	P	Surrogate spikes (%R) (S)
280-51766-1	RD-37_020314_01 RD-84_020314_01 RD-73_020314_01 RD-73_020314_36 TB_RD-73_020314	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG



LDC #: 31380C7  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/3/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	SW	<u>D=3+4</u>
XIII.	Field blanks	SW	<u>TB=5, FB=FB-021214-19 (280-52081-1)</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB=EB-RD-07-020714  
(280-51958-1)

Validated Samples: water

1	RD-37_020314_01	11		21		31	
2	RD-84_020314_01	12		22		32	
3	RD-73_020314_01	13		23		33	
4	RD-73_020314_36	14		24		34	
5	TB RD-73_020314	15		25		35	
6	RD-84_020314_01MS	16		26		36	
7	RD-84_020314_01MSD	17		27		37	
8		18		28		38	
9		19	<u>MB 280-211629</u>	29		39	
10		20	<u>MB 280-211874</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Spikes**

**METHOD:** GC  TFH Volatiles (Gasoline)  TFH Extractables (Diesel)  CDOHS LUFT  EPA SW 846 Method 8015 Modified.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were surrogates spiked into all samples and blanks? (Not required)

N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Date	Sample ID	Surrogate Compound	%R (Limits)	Qualifications
		2	A	Ø (82-110)	J/R/A * (S)
		3	A	Ø (82-110)	J/R/P * (S)
		4	A	Ø (82-110)	J/R/P * (S)
				( )	
				( )	
		* the analyte & surrogate co-elution resulted in the inability to quantify a 0% recovery.			
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	a,a,a-Trifluorotoluene			
B				

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: TPH as Gasoline (EPA SW 846 Method 8015B)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	3	4		
C6-C12	1100	1100	0	--

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 3, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
RD-84\_020314\_01  
HAR-01\_020314\_01  
C-1\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as extractable contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01 RD-84_020314_01 HAR-01_020314_01 C-1_020314_01 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C8  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Th  
 2nd Reviewer: JV6

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/3/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	<u>LCS</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	<u>D=5+6</u>
XIII.	Field blanks	<u>SWND</u>	<u>FB = FB-021214-19 (280-52081-?)</u> <u>EB = EB-RD-07-020714 (280-51958-)</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

water

1	RD-37_020314_01	11		21		31	
2	RD-84_020314_01	12		22		32	
3	HAR-01_020314_01	13		23		33	
4	C-1_020314_01	14		24		34	
5	RD-73_020314_01	15		25		35	
6	RD-73_020314_36	16		26		36	
7	HAR-01_020314_01MS	17		27		37	
8	HAR-01_020314_01MSD	18		28		38	
9		19	<u>MB 280-211876</u>	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 3, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

HAR-01\_020314\_01  
TB\_HAR-01\_020314  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 504.1 for 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found in the method blanks.

Sample TB\_HAR-01\_020314 was identified as a trip blank. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Data Qualification Summary -  
 SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01 TB_HAR-01_020314	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Laboratory Blank Data  
 Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Field Blank Data Qualification  
 Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C10

### VALIDATION COMPLETENESS WORKSHEET

Date: 3-4-14

SDG #: 280-51766-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc. Inc.

Reviewer: Jm

2nd Reviewer: JM

**METHOD:** GC 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane (EPA Method 504.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/3/14</u>
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	<u>TB=2</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

water

1	HAR-01_020314_01	11		21		31	
2	TB_HAR-01_020314	12		22		32	
3	HAR-01_020314_01MS	13		23		33	
4	HAR-01_020314_01MSD	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>MB 280-212264</u>	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Organophosphorus Pesticides

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

### Sample Identification

HAR-01\_020314\_01

HAR-01\_020314\_01MS

HAR-01\_020314\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8141A for Organophosphorus Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No organophosphorus pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. The percent recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C17

### VALIDATION COMPLETENESS WORKSHEET

Date: 3-4-14

SDG #: 280-51766-1

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: Jm

2nd Reviewer: Jve

**METHOD:** GC Organophosphorus Pesticides (EPA SW 846 Method 8141A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-01_020314_01	11		21		31	
2	HAR-01_020314_01MS	12		22		32	
3	HAR-01_020314_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-212258	29		39	
10		20		30		40	

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Hexachlorophene

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

HAR-01\_020314\_01  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8321A for Hexachlorophene.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No hexachlorophene was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C44  
 SDG #: 280-51766-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: JG

**METHOD:** LC/MS Hexachlorophene (EPA SW 846 Method 8321A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/3/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	<u>LCS</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	HAR-01_020314_01	11		21		31	
2	HAR-01_020314_01MS	12		22		32	
3	HAR-01_020314_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>MB280-211994</u>	29		39	
10		20		30		40	

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
HAR-01\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

Sample EB\_RD-110-021014 (from SDG 280-51987-1) was identified as an equipment blank. No formaldehyde was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No formaldehyde was found.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No formaldehyde was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01 HAR-01_020314_01 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C71  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: ym  
 2nd Reviewer: JV6

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D=3+4
XIII.	Field blanks	ND	FB = FB_021214_19 (280-52081-1) EB = EB_RD+FB_021214 (280-51958-1) 87-1

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

water

1	RD-37_020314_01	11		21		31	
2	HAR-01_020314_01	12		22		32	
3	RD-73_020314_01	13		23		33	
4	RD-73_020314_36	14		24		34	
5	HAR-01_020314_01MS	15		25		35	
6	HAR-01_020314_01MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB240-118650	29		39	
10		20		30		40	

Notes:

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
HAR-01\_020314\_01  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51766-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51766-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51766-1	RD-37_020314_01 HAR-01_020314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C76  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: *TM*  
 2nd Reviewer: *JV*

**METHOD:** HPLC Hydrazines (EPA-SW846 Method 8315A)

*DV-WC-0077*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/3/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

1	RD-37_020314_01	11		21		31	
2	HAR-01_020314_01	12		22		32	
3	HAR-01_020314_01MS	13		23		33	
4	HAR-01_020314_01MSD	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<i>MB 280-212300</i>	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 13, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No perchlorate was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No perchlorate was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51766-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No perchlorate was detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01	RD-73_020314_36			
Perchlorate	6.4	6.3	2 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51766-1	RD-37_020314_01 RD-73_020314_01 RD-73_020314_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/13/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	SW	D=2+3
XVI.	Field blanks	ND	FB = FB-021214-19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

EB = EB-RD-07-020714 (280-51958-1)  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

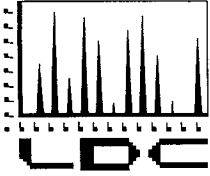
1	RD-37_020314_01	11		21		31	
2	RD-73_020314_01	12		22		32	
3	RD-73_020314_36	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-211711	29		39	
10		20		30		40	

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: LC/MS Perchlorate (EPA SW 846 Method 6860)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	2	3		
Perchlorate	6.4	6.3	2	--





**LABORATORY DATA CONSULTANTS, INC.**  
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 18, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

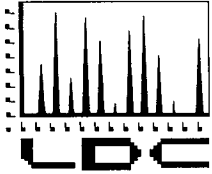
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31380:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51669-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51716-1	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51766-1	Chlorinated Pesticides, Polychlorinated Biphenyls, Metals,
280-51797-1	Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons
280-51799-1/H4B070408	as Gasoline, Total Petroleum Hydrocarbons as
280-51854-1	Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-
280-51855-1/H4B100402	chloropropane, Organophosphorus Pesticides, Explosives,
	Hexachlorophene, Formaldehyde, Hydrazines,
	Perchlorate, Nitrosodimethylamine, Pentachlorophenol,
	Fluoride, Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01  
TB\_HAR-24\_020414  
HAR-25\_020414\_01  
TB\_HAR-25\_020414

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_HAR-24\_020414 and TB\_HAR-25\_020414 were identified as trip blanks. No volatile contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01 TB_HAR-24_020414 HAR-25_020414_01 TB_HAR-25_020414	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG



LDC #: 31380D1a  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: JVB

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2, 4

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	1, 2 HAR-24_020414_01	11		21		31	
2	1, 2 TB HAR-24_020414	12		22		32	
3	2 HAR-25_020414_01	13		23		33	
4	2 TB HAR-25_020414	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18	1 MB 280-212409	28		38	
9		19	2 MB 280-212589	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01  
TB\_HAR-25\_020414

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Sample TB\_HAR-25\_020414 was identified as a trip blank. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**  
**1,4-Dioxane - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01 TB_HAR-25_020414	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**  
**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**  
**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D1b  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: TM  
 2nd Reviewer: JLC

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-25_020414_01	11		21		31	
2	TB_HAR-25_020414	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-21944	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01  
TB\_HAR-25\_020414



## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Sample TB\_HAR-25\_020414 was identified as a trip blank. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01 TB_HAR-25_020414	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D1c  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: *TM*  
 2nd Reviewer: *DLB*

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB=2

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	HAR-25_020414_01	11		21		31	
2	TB_HAR-25_020414	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB440-161061	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.



## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D2a  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: JG

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/4/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	<u>LCS/LCSD</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-25_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>MB 280-2/2/15</u>	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 12, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01

HAR-25\_020414\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-212081	2/7/14	Di-n-octylphthalate	0.0349 ug/L	HAR-24_020414_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field blanks were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01 HAR-25_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG



LDC #: 31380D2b  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Ym  
 2nd Reviewer: JVB

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-24_020414_01	11		21		31	
2	HAR-25_020414_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB280-212081	29		39	
10		20		30		40	

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG



LDC #: 31380D2c  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: JVG

SW 846 Method 8270D-SIM

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/04/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-25_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-212494	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D3b

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-4-14

SDG #: 280-51797-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: Jm

2nd Reviewer: JG

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-24_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB280-212094	29		39	
10		20		30		40	

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01  
HAR-25\_020414\_01  
HAR-24\_020414\_01F  
HAR-25\_020414\_01F

Samples appended with "F" were analyzed for dissolved metals



## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020, 6010B, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Boron, Cadmium, Cobalt, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Barium	0.000419 mg/L	HAR-24_020414_01 HAR-25_020414_01

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

### X. ICP Serial Dilution

ICP serial dilution was not performed for this SDG.

### XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51797-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01 HAR-25_020414_01 HAR-24_020414_01F HAR-25_020414_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D4  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

9MA

Date: 3-7-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Metals (EPA SW 846 Method 6020 ~~#7000~~) 6010B/7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-4-14
II.	ICP/MS Tune	N	not reviewed
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	N	client specified
VII.	Duplicate Sample Analysis	N	" "
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	not reviewed
<del>X.</del>	<del>Furnace Atomic Absorption QC</del>		
XI.	ICP Serial Dilution	N	not performed
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

9MA

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	HAR-24_020414_01	11		21		31	
2	HAR-25_020414_01	12		22		32	
3	HAR-24_020414_01F	13		23		33	
4	HAR-25_020414_01F	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19 <sup>1</sup>	PBW 1	29		39	
10		20 <sup>2</sup>	PBW 2	30		40	

Notes: Samples appended with "F" were analyzed as dissolved



LDC #: 31380D4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1,2 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Ba		0.000419		0.0021										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Herbicides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Herbicides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No herbicide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D5  
 SDG #: 280-51797-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-4-14  
 Page: 1 of 1  
 Reviewer: JW  
 2nd Reviewer: JVC

**METHOD:** GC Herbicides (EPA SW 846 Method 8151A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V61	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-25_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-212195	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01  
HAR-25\_020414\_01MS  
HAR-25\_020414\_01MSD  
HAR-25\_020414\_01DUP

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Fluoride and Nitrate as Nitrogen, EPA SW 846 Method 7196A for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 9040B for pH.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
HAR-25_020414_01	Nitrate as N	54.50 hours	48 hours	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P
	pH	57.25 hours	48 hours		
HAR-25_020414_01DUP	pH	57.25 hours	48 hours	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Fluoride	0.0732 mg/L	All samples from SDG 280-51797-1

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.



## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51797-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01	Nitrate as N pH	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51797-1	HAR-25_020414_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D6  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-7-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Ammonia-N (EPA Method 350.1), Fluoride, Nitrate-N (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 2-4-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	SW	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	N	

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples:  
 Water

1	HAR-25_020414_01	11		21		31	
2	HAR-25_020414_01MS	12		22		32	
3	HAR-25_020414_01MSD	13		23		33	
4	HAR-25_020414_01DUP	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
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LDC #: 31380D6

### VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1

Reviewer: MG

2nd Reviewer: Q

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: all (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)											
F	0.0732		0.366										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 4, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01  
HAR-25\_020414\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01 HAR-25_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D8  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: Th  
 2nd Reviewer: JV6

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/4/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Water

1	HAR-24_020414_01	11		21		31	
2	HAR-25_020414_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>MB 280-211871p</u>	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Explosives

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330A for Explosives.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
MB280-212310	2/10/14	RDX	0.117 ug/L	All samples in SDG 280-51797-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-24_020414_01	RDX	0.15 ug/L	0.52U ug/L

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Explosives - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Field Blank Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51797-1	HAR-24_020414_01	RDX	0.52U ug/L	A	B

LDC #: 31380D40  
 SDG #: 280-51797-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: *TM*  
 2nd Reviewer: *JVC*

**METHOD:** HPLC Explosives (EPA SW 846 Method 8330A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	SW	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	HAR-24_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-212310	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 31380D40

### VALIDATION FINDINGS WORKSHEET

Page: 1 of 1

### Blanks

Reviewer: JM

2nd Reviewer: JV6

HPLC

METHOD: Explosives (EPA SW 846 Method 8330)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Were all samples associated with a given method blank?
- Y N N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
- Y N N/A Was a method blank performed with each extraction batch?
- Y N N/A Were any contaminants found in the method blanks? If yes, please see findings below.

Blank extraction date: 2/10/14 Blank analysis date: 2/11/14 Associated samples: All (B)

Conc. units: ng/L

Compound	Blank ID	Sample Identification							
	MB280-212310	5x	1 (20x)						
RDX	0.117	0.585	0.15/0.52u						

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_ Associated samples: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_ Associated samples: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 13, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01  
HAR-24\_020414\_01RE  
HAR-25\_020414\_01  
HAR-25\_020414\_01RE

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
HAR-24_020414_01RE HAR-25_020414_01RE	Formaldehyde	8	3	J (all detects) R (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were not required by the method.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
240-118901/4-A	Formaldehyde	46 (53-129)	HAR-24_020414_01 HAR-25_020414_01 MB240-118901	J (all detects) UJ (all non-detects)	P

### VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

### IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
HAR-24_020414_01RE HAR-25_020414_01RE	Formaldehyde	R	A

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01RE HAR-25_020414_01RE	Formaldehyde	J (all detects) R (all non-detects)	P	Technical holding time (H)
280-51797-1	HAR-24_020414_01 HAR-25_020414_01	Formaldehyde	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-51797-1	HAR-24_020414_01 HAR-24_020414_01RE HAR-25_020414_01 HAR-25_020414_01RE	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)
280-51797-1	HAR-24_020414_01RE HAR-25_020414_01RE	Formaldehyde	R	A	Overall assessment of data (D)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG



LDC #: 31380D71  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: <u>2/4/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	SW	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	SW	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Water

1	1	HAR-24_020414_01	11		21		31	
2	2	HAR-24_020414_01RE	12		22		32	
3	1	HAR-25_020414_01	13		23		33	
4	2	HAR-25_020414_01RE	14		24		34	
5			15		25		35	
6			16		26		36	
7			17		27		37	
8			18		28		38	
9			19	1 MB 240-118901	29		39	
10			20	2 MB 240-119335	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Technical Holding Times**

All circled dates have exceeded the technical holding times.

Y N N/A Were all cooler temperatures within validation criteria?

METHOD: <u>GC</u> <del>HPLC</del>							
Sample ID	Matrix	Preserved	Sampling Date	<u>Extraction date</u>	Analysis date	Total # of Days	Qualifier
<u>2,4</u>	<u>W</u>		<u>2/4/14</u>	<u>2/12/14</u>	<u>2/12/14</u>	<u>8</u>	<u>J/R/P (H)</u>

**TECHNICAL HOLDING TIME CRITERIA**

**VOLATILES:** Water unpreserved: Aromatic within 7 days, non-aromatic within 14 days of sample collection.  
 Water preserved: Both within 14 days of sample collection.  
 Soils: Both within 14 days of sample collection.

**EXTRACTABLES:**  
 Water: Extracted within 7 days, analyzed within 40 days.  
 Soil: Extracted within 14 days, analyzed within 40 days.

Formaldehyde: water: 3 days



VALIDATION FINDINGS WORKSHEET  
Overall Assessment of Data

METHOD:  GC  HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable?

#	Compound Name	Finding	Associated Samples	Qualifications
		sample re-extracted outside of hold time	2,4	R/A (D)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Hydrazines

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per SOP DV-WC-0077 for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51797-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31380D76  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-4-14  
 Page: 1 of 1  
 Reviewer: JM  
 2nd Reviewer: JL

DV-WC-0077

**METHOD:** HPLC Hydrazines (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	HAR-25_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-212300	29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-24\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. LC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Analyte	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
280-212894/15-16 (All samples in SDG 280-51797-1)	Perchlorate	-	405 (80-120)	128 ( $\leq 15$ )	J (all detects) UJ (all non-detects)	P

**IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51797-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. System Performance**

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51797-1	HAR-24_020414_01	Perchlorate	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)(RPD) (L)
280-51797-1	HAR-24_020414_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG



LDC #: 31380D87

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-4-14

SDG #: 280-51797-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: Jm

2nd Reviewer: JVB

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	SW	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

water

1	HAR-24_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MP280-212894	29		39	
10		20		30		40	

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Samples (LCS)**

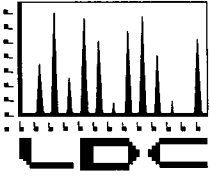
**METHOD:** LC/MS Perchlorate (EPA SW 846 Method 6860)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a LCS required?
- Y  N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		280-212894/15-16	P	( )	405 (80-120)	128 ( 15 )	All	J/UJ/P (L)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

P = Perchlorate



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 18, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

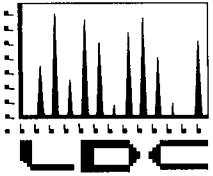
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31380:

<u>SDG #</u>	<u>Fraction</u>
280-51669-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51716-1	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51766-1	Chlorinated Pesticides, Polychlorinated Biphenyls, Metals,
280-51797-1	Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons
280-51799-1/H4B070408	as Gasoline, Total Petroleum Hydrocarbons as
280-51854-1	Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-
280-51855-1/H4B100402	chloropropane, Organophosphorus Pesticides, Explosives,
	Hexachlorophene, Formaldehyde, Hydrazines,
	Perchlorate, Nitrosodimethylamine, Pentachlorophenol,
	Fluoride, Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																					
LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)					
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																					
A	280-51669-1	02/24/14	03/17/14	8	0	8	0	8	0	5	0	4	0	-	-	-	-	2	0	6	0	6	0	6	0	1	0	2	0	5	0	2	0				
B	280-51716-1	02/24/14	03/17/14	10	0	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	3	0	3	0	-	-	-	-	3	0	-	-				
C	280-51766-1	02/24/14	03/17/14	9	0	5	0	5	0	2	0	5	0	3	0	1	0	1	0	6	0	6	0	6	0	3	0	5	0	6	0	2	0				
D	280-51797-1	02/24/14	03/17/14	4	0	2	0	2	0	1	0	2	0	1	0	-	-	-	-	1	0	2	0	2	0	1	0	-	-	2	0	-	-				
F	280-51854-1	02/24/14	03/17/14	13	0	2	0	-	-	-	-	1	0	-	-	-	-	-	-	-	-	9	0	9	0	-	-	-	-	1	0	-	-				
Total	T/PG			44	0	17	0	15	0	8	0	15	0	4	0	1	0	3	0	13	0	26	0	26	0	5	0	7	0	17	0	4	0	0	0	0	205

EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																					
LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)		1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)																	
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																					
A	280-51669-1	02/24/14	03/17/14	1	0	-	-	1	0	5	0	2	0	-	-	4	0	4	0	4	0																
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-																
C	280-51766-1	02/24/14	03/17/14	1	0	-	-	1	0	4	0	-	-	3	0	2	0	2	0	2	0																
D	280-51797-1	02/24/14	03/17/14	-	-	-	-	-	-	4	0	1	0	1	0	1	0	1	0	1	0																
E	280-51799-1/ H4B070408	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																	
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-																
G	280-51855-1/ H4B100402	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																	
Total	T/PG			2	0	2	0	2	0	13	0	3	0	8	0	7	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51

EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																						
LDC	SDG#	DATE REC'D	(3) DATE DUE	Aik. (2320B)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		NO <sub>2</sub> (300.0)		SO <sub>4</sub> (300.0)		Cond. (2510B)		Total CN- (9012A)		Cr(VI) (7196A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)		TDS (2540C)		Turb. (180.1)						
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	
Matrix: Water/Soil																																						
A	280-51669-1	02/24/14	03/17/14	2	0	5	0	2	0	6	0	5	0	-	-	2	0	2	0	1	0	-	-	3	0	5	0	1	0	2	0	2	0					
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	1	0	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	280-51766-1	02/24/14	03/17/14	-	-	2	0	-	-	3	0	4	0	2	0	-	-	-	-	1	0	-	-	2	0	2	0	1	0	-	-	-	-	-	-	-	-	
D	280-51797-1	02/24/14	03/17/14	-	-	1	0	-	-	1	0	1	0	-	-	-	-	-	-	-	-	1	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-	
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	7	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	T/PG			2	0	8	0	3	0	17	0	12	0	2	0	2	0	2	0	2	0	1	0	6	0	8	0	2	0	2	0	2	0	2	0	0	0	71

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51799-1

**Sample Identification**

HAR-24\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4042035	2/11/14	1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.31 pg/L 1.1 pg/L 6.8 pg/L 0.22 pg/L 0.31 pg/L 0.16 pg/L 0.40 pg/L 0.65 pg/L 1.2 pg/L 0.55 pg/L 3.7 pg/L	All samples in SDG 280-51799-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:



Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-24_020414_01	1,2,3,4,6,7,8-HpCDD	0.81 pg/L	0.81U pg/L
	OCDD	6.6 pg/L	6.6U pg/L
	1,2,3,4,7,8-HxCDF	0.37 pg/L	0.37U pg/L
	2,3,4,6,7,8-HxCDF	0.34 pg/L	0.34U pg/L
	1,2,3,7,8,9-HxCDF	0.27 pg/L	0.27U pg/L
	1,2,3,4,6,7,8-HpCDF	0.62 pg/L	0.62U pg/L
	1,2,3,4,7,8,9-HpCDF	0.49 pg/L	0.49U pg/L
	OCDF	2.0 pg/L	2.0U pg/L

No field blanks were identified in this SDG.

#### VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Regional Quality Assurance and Quality Control

Not applicable.

#### IX. Internal Standards

Internal standards data were not reviewed for Level II.

#### X. Target Compound Identifications

Raw data were not reviewed for this SDG.

#### XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51799-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XII. System Performance**

Raw data were not reviewed for this SDG.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51799-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51799-1	HAR-24_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51799-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51799-1	HAR-24_020414_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.81U pg/L 6.6U pg/L 0.37U pg/L 0.34U pg/L 0.27U pg/L 0.62U pg/L 0.49U pg/L 2.0U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51799-1**

No Sample Data Qualified in this SDG

LDC #: 31380E21

### VALIDATION COMPLETENESS WORKSHEET

Date: 3-4-14

SDG #: 280-51799-1/H4B070408

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: Ym

2nd Reviewer: JVC

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/4/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: water

1	HAR-24_020414_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	4042035	30		40	

Notes:

# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**

**Blanks**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N  N/A Were all samples associated with a method blank?

Y  N  N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y  N  N/A Was the method blank contaminated?

**Blank extraction date:** 02/11/14 **Blank analysis date:** 02/14/14 **Associated samples:** All Qual U (B)

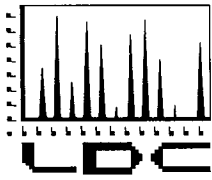
**Conc. units:** pg/L

Compound	Blank ID	Sample Identification							
		5x	1						
	4042035								
D	0.31*	1.55							
F	1.1	5.50	0.81*						
G	6.8*	34.0	6.6						
J	0.22*	1.10							
K	0.31	1.55	0.37*						
L	0.16*	0.800							
M	0.40	2.00	0.34*						
N	0.65*	3.25	0.27						
O	1.2	6.00	0.62*						
P	0.55*	2.75	0.49*						
Q	3.7*	18.50	2.0*						

\*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 18, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

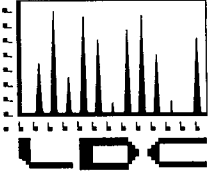
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31380:

<u>SDG #</u>	<u>Fraction</u>
280-51669-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51716-1	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51766-1	Chlorinated Pesticides, Polychlorinated Biphenyls, Metals,
280-51797-1	Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons
280-51799-1/H4B070408	as Gasoline, Total Petroleum Hydrocarbons as
280-51854-1	Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-
280-51855-1/H4B100402	chloropropane, Organophosphorus Pesticides, Explosives,
	Hexachlorophene, Formaldehyde, Hydrazines,
	Perchlorate, Nitrosodimethylamine, Pentachlorophenol,
	Fluoride, Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51854-1

### Sample Identification

OS-02\_020514\_01  
TB\_OS-02\_020514  
OS-03\_020514\_01  
OS-04\_020514\_01  
OS-05A\_020514\_01  
OS-09\_020514\_01  
RD-59A\_020514\_01  
RD-59B\_020514\_01  
TB\_RD-59B\_020514  
RD-59C\_020514\_01  
RD-15\_020514\_01  
RD-60\_020514\_01  
TB\_RD-60\_020514  
RD-59C\_020514\_01MS  
RD-59C\_020514\_01MSD

## Introduction

This data review covers 15 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-212603	2/12/14	Acetone	5.18 ug/L	OS-02_020514_01 TB_OS-02_020514 OS-03_020514_01 OS-04_020514_01 OS-05A_020514_01 OS-09_020514_01 RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01 RD-15_020514_01 RD-60_020514_01 TB_RD-60_020514

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
OS-02_020514_01	Acetone	5.3 ug/L	10U ug/L
TB_OS-02_020514	Acetone	7.4 ug/L	10U ug/L

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
OS-04_020514_01	Acetone	5.1 ug/L	10U ug/L
OS-09_020514_01	Acetone	7.1 ug/L	10U ug/L
RD-59A_020514_01	Acetone	7.0 ug/L	10U ug/L
RD-59B_020514_01	Acetone	5.4 ug/L	10U ug/L
RD-15_020514_01	Acetone	5.4 ug/L	10U ug/L
RD-60_020514_01	Acetone	5.0 ug/L	10U ug/L
TB_RD-60_020514	Acetone	4.6 ug/L	10U ug/L

Samples TB\_OS-02\_020514, TB\_RD-59B\_020514, and TB\_RD-60\_020514 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_OS-02_0205	2/5/14	Acetone	7.4 ug/L	OS-02_020514_01 OS-03_020514_01 OS-04_020514_01 OS-05A_020514_01 OS-09_020514_01
TB_RD-59B_020514	2/5/14	Acetone	18 ug/L	RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01
TB_RD-60_020514	2/5/14	Acetone	4.6 ug/L	RD-15_020514_01 RD-60_020514_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
OS-02_020514_01	Acetone	5.3 ug/L	10U ug/L
OS-04_020514_01	Acetone	5.1 ug/L	10U ug/L
OS-09_020514_01	Acetone	7.1 ug/L	10U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-59A_020514_01	Acetone	7.0 ug/L	10U ug/L
RD-59B_020514_01	Acetone	5.4 ug/L	10U ug/L
RD-15_020514_01	Acetone	5.4 ug/L	10U ug/L
RD-60_020514_01	Acetone	5.0 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-59C_020514_01MS/MSD (RD-59C_020514_01)	Methylene chloride Trichlorofluoromethane	- -	- -	22 (≤20) 22 (≤20)	J (all detects) J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG280-51854-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51854-1	RD-59C_020514_01	Methylene chloride Trichlorofluoromethane	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (E)
280-51854-1	OS-02_020514_01 TB_OS-02_020514 OS-03_020514_01 OS-04_020514_01 OS-05A_020514_01 OS-09_020514_01 RD-59A_020514_01 RD-59B_020514_01 TB_RD-59B_020514 RD-59C_020514_01 RD-15_020514_01 RD-60_020514_01 TB_RD-60_020514	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51854-1	OS-02_020514_01	Acetone	10U ug/L	A	B
280-51854-1	TB_OS-02_020514	Acetone	10U ug/L	A	B
280-51854-1	OS-04_020514_01	Acetone	10U ug/L	A	B
280-51854-1	OS-09_020514_01	Acetone	10U ug/L	A	B
280-51854-1	RD-59A_020514_01	Acetone	10U ug/L	A	B
280-51854-1	RD-59B_020514_01	Acetone	10U ug/L	A	B
280-51854-1	RD-15_020514_01	Acetone	10U ug/L	A	B
280-51854-1	RD-60_020514_01	Acetone	10U ug/L	A	B
280-51854-1	TB_RD-60_020514	Acetone	10U ug/L	A	B



**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51854-1	OS-02_020514_01	Acetone	10U ug/L	A	T
280-51854-1	OS-04_020514_01	Acetone	10U ug/L	A	T
280-51854-1	OS-09_020514_01	Acetone	10U ug/L	A	T
280-51854-1	RD-59A_020514_01	Acetone	10U ug/L	A	T
280-51854-1	RD-59B_020514_01	Acetone	10U ug/L	A	T
280-51854-1	RD-15_020514_01	Acetone	10U ug/L	A	T
280-51854-1	RD-60_020514_01	Acetone	10U ug/L	A	T

LDC #: 31380F1a  
 SDG #: 280-51854-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: CM  
 2nd Reviewer: JV

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/5/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = <u>2, 9, 13</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	OS-02_020514_01	11	RD-15_020514_01	21		31	
2	TB_OS-02_020514	12	RD-60_020514_01  , 2	22		32	
3	OS-03_020514_01	13	TB_RD-60_020514	23		33	
4	OS-04_020514_01	14	RD-59C_020514_01MS	24		34	
5	OS-05A_020514_01	15	RD-59C_020514_01MSD	25		35	
6	OS-09_020514_01	16		26		36	
7	RD-59A_020514_01	17		27		37	
8	RD-59B_020514_01	18		28	1 MB 280-212603	38	
9	TB_RD-59B_020514 2	19		29	2 MB 280-212817	39	
10	RD-59C_020514_01	20		30		40	

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**

**Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a method blank associated with every sample in this SDG?
- N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
- N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 2/12/14

Conc. units: mg/L

Associated Samples: 1-8, 10-13 (B)

Compound	Blank ID	Sample Identification								
	MB 280-212603	10x	1	2	4	6	7	8	11	12
F	5.18	57.8	5.3/10u	7.4/10u	5.1/10u	7.1/10u	7.0/10u	5.4/10u	5.4/10u	5.0/10u

Blank analysis date: 2/12/14

Conc. units: mg/L

Associated Samples:

Compound	Blank ID	Sample Identification								
		13								
		4.6/10u								

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

- N/N/A Were field blanks identified in this SDG?
- N/N/A Were target compounds detected in the field blanks?

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 1, 3-6 (T)

Compound	Blank ID <u>2</u>		Sample Identification							
Sampling Date	<u>2/5/14</u>	<u>10x</u>	<u>1</u>	<u>4</u>	<u>6</u>					
<u>F</u>	<u>7.4</u>	<u>74</u>	<u>5.3/10u</u>	<u>5.1/10u</u>	<u>7.1/10u</u>					

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 7-8, 10 (T)

Compound	Blank ID <u>9</u>		Sample Identification							
Sampling Date	<u>2/5/14</u>	<u>10x</u>	<u>7</u>	<u>8</u>						
<u>F</u>	<u>18</u>	<u>180</u>	<u>7.0/10u</u>	<u>5.4/10u</u>						

Blank units: µg/L Associated sample units: µg/L

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: TB Associated Samples: 11-12 (T)

Compound	Blank ID <u>3</u>		Sample Identification							
Sampling Date	<u>2/5/14</u>	<u>10x</u>	<u>11</u>	<u>12</u>						
<u>F</u>	<u>4.6</u>	<u>46</u>	<u>5.4/10u</u>	<u>5.0/10u</u>						

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates**

**METHOD** : GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.
- Y  N  N/A Was a MS/MSD analyzed every 20 samples of each matrix?
- Y  N  N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		14/15	E	( )	( )	22( 20 )	10	Idets/A (E)
		↓	KK	( )	( )	22( 20 )	↓	↓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 5, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51854-1

**Sample Identification**

RD-60\_020514\_01  
TB\_RD-60\_020514

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Sample TB\_RD-60\_020514 was identified as a trip blank. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG280-51854-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51854-1	RD-60_020514_01 TB_RD-60_020514	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

LDC #: 31380F1c  
 SDG #: 280-51854-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: Jm  
 2nd Reviewer: DLG

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/5/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB=2

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-60_020514_01	11		21		31	
2	TB_RD-60_020514	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB440-161341	29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 5, 2014

**LDC Report Date:** March 12, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51854-1

**Sample Identification**

OS-28\_020514\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG280-51854-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51854-1	OS-28_020514_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

LDC #: 31380F2b  
 SDG #: 280-51854-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: Ym  
 2nd Reviewer: JVB

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/5/14</u>
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	<u>LCS/LCSD</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples: Water

1	OS-28_020514_01	11		21		31
2		12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19	<u>MB280-212081</u>	29		39
10		20		30		40

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** March 7, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51854-1

### Sample Identification

OS-02_020514_01	RD-59C_020514_01FMS
OS-03_020514_01	RD-59C_020514_01FMSD
OS-04_020514_01	
OS-05A_020514_01	
RD-59A_020514_01	
RD-59B_020514_01	
RD-59C_020514_01	
OS-28_020514_01	
RD-15_020514_01	
OS-02_020514_01F	
OS-03_020514_01F	
OS-04_020514_01F	
OS-05A_020514_01F	
RD-59A_020514_01F	
RD-59B_020514_01F	
RD-59C_020514_01F	
OS-28_020514_01F	
RD-15_020514_01F	
RD-59C_020514_01MS	
RD-59C_020514_01MSD	

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 22 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020, 6010B, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Tin, Sodium, Thallium, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	1.19 mg/L	OS-02_020514_01 OS-03_020514_01 OS-04_020514_01 RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01
PB (prep blank)	Barium	0.000419 mg/L	OS-02_020514_01 OS-03_020514_01 OS-04_020514_01 OS-05A_020514_01 RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01 RD-15_020514_01

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51854-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51854-1	OS-02_020514_01 OS-03_020514_01 OS-04_020514_01 OS-05A_020514_01 RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01 OS-28_020514_01 RD-15_020514_01 OS-02_020514_01F OS-03_020514_01F OS-04_020514_01F OS-05A_020514_01F RD-59A_020514_01F RD-59B_020514_01F RD-59C_020514_01F OS-28_020514_01F RD-15_020514_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

LDC #: 31380F4  
 SDG #: 280-51854-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

*gmj*

Date: 3-7-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: JTK

**METHOD:** Metals (EPA SW 846 Method 6020~~(17000)~~) 6010B / 7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-5-14</u>
II.	ICP/MS Tune	N	<u>not reviewed</u>
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	<u>MS/MSD</u>
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	<u>LCS/LCSD</u>
IX.	Internal Standard (ICP-MS)	N	<u>not reviewed</u>
<del>X.</del>	<del>Furnace Atomic Absorption QG</del>		
XI.	ICP Serial Dilution	A <i>✓</i>	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
all water

1	OS-02_020514_01	11	OS-03_020514_01F	21	RD-59C_020514_01FMS	31	
2	OS-03_020514_01	12	OS-04_020514_01F	22	RD-59C_020514_01FMSD	32	
3	OS-04_020514_01	13	OS-05A_020514_01F	23		33	
4	OS-05A_020514_01	14	RD-59A_020514_01F	24		34	
5	RD-59A_020514_01	15	RD-59B_020514_01F	25		35	
6	RD-59B_020514_01	16	RD-59C_020514_01F	26		36	
7	RD-59C_020514_01	17	OS-28_020514_01F	27		37	
8	OS-28_020514_01	18	RD-15_020514_01F	28		38	
9	RD-15_020514_01	19	RD-59C_020514_01MS	29		39	<u>PBW 1</u>
10	OS-02_020514_01F	20	RD-59C_020514_01MSD	30		40 ?	<u>PBW 2</u>

Notes: Samples appended with "F" were analyzed as dissolved





LDC #: 31380F4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1-3,5-7 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: JB

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Na		1.19		5.95										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-7,9 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Ba		0.000419		0.0021										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 5, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Fluoride

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51854-1

**Sample Identification**

OS-02\_020514\_01  
OS-03\_020514\_01  
OS-04\_020514\_01  
RD-59A\_020514\_01  
RD-59B\_020514\_01  
RD-59C\_020514\_01  
RD-60\_020514\_01  
RD-59C\_020514\_01MS  
RD-59C\_020514\_01MSD  
RD-59C\_020514\_01DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No fluoride contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Fluoride	0.0633 mg/L	All samples from SDG 280-51854-1

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51854-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Fluoride - Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51854-1	OS-02_020514_01 OS-03_020514_01 OS-04_020514_01 RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01 RD-60_020514_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Fluoride - Laboratory Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Fluoride - Field Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

LDC #: 31380F6  
 SDG #: 280-51854-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-7-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JB

**METHOD:** Fluoride (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	OS-02_020514_01	11		21		31	
2	OS-03_020514_01	12		22		32	
3	OS-04_020514_01	13		23		33	
4	RD-59A_020514_01	14		24		34	
5	RD-59B_020514_01	15		25		35	
6	RD-59C_020514_01	16		26		36	
7	RD-60_020514_01	17		27		37	
8	RD-59C_020514_01MS	18		28		38	
9	RD-59C_020514_01MSD	19		29		39	
10	RD-59C_020514_01DUP	20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## VALIDATION FINDINGS WORKSHEET

### Blanks

METHOD: Inorganics, Method 300.0

Conc. units: mg/L

Associated Samples: all (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit													
	PB	ICB/CCB (mg/L)		No Qual's.												
F	0.0633		0.3165													

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** March 6, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51854-1

**Sample Identification**

OS-28\_020514\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51854-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51854-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51854-1	OS-28_020514_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

LDC #: 31380F8

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-6-14

SDG #: 280-51854-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: *Ym*

2nd Reviewer: *JV*

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/5/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	OS-28_020514_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB 280-211871e	29		39	
10		20		30		40	

Notes: \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 5, 2014

**LDC Report Date:** March 6, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51854-1

**Sample Identification**

RD-59A\_020514\_01  
RD-59B\_020514\_01  
RD-59C\_020514\_01  
RD-59C\_020514\_01MS  
RD-59C\_020514\_01MSD



## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG280-51854-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51854-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51854-1	RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51854-1**

No Sample Data Qualified in this SDG

LDC #: 31380F87

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-6-14

SDG #: 280-51854-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: *YH*2nd Reviewer: *JVB***METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/5/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

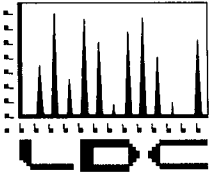
Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: *water*

1	RD-59A_020514_01	11		21		31	
2	RD-59B_020514_01	12		22		32	
3	RD-59C_020514_01	13		23		33	
4	RD-59C_020514_01MS	14		24		34	
5	RD-59C_020514_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19	MB280-212295	29		39	
10		20		30		40	



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 18, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

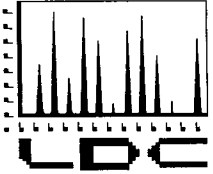
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on February 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31380:

<u>SDG #</u>	<u>Fraction</u>
280-51669-1	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane,
280-51716-1	Semivolatiles, Polynuclear Aromatic Hydrocarbons,
280-51766-1	Chlorinated Pesticides, Polychlorinated Biphenyls, Metals,
280-51797-1	Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons
280-51799-1/H4B070408	as Gasoline, Total Petroleum Hydrocarbons as
280-51854-1	Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-
280-51855-1/H4B100402	chloropropane, Organophosphorus Pesticides, Explosives,
	Hexachlorophene, Formaldehyde, Hydrazines,
	Perchlorate, Nitrosodimethylamine, Pentachlorophenol,
	Fluoride, Dioxins/Dibenzofurans

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625C)		PCP (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Herbs (8151A)		GRO (8015B)		DRO (8015B)		EDB (504.1)							
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	8	0	8	0	8	0	5	0	4	0	-	-	-	-	2	0	6	0	6	0	6	0	1	0	2	0	5	0	2	0						
B	280-51716-1	02/24/14	03/17/14	10	0	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	3	0	3	0	-	-	-	-	3	0	-	-						
C	280-51766-1	02/24/14	03/17/14	9	0	5	0	5	0	2	0	5	0	3	0	1	0	1	0	6	0	6	0	6	0	3	0	5	0	6	0	2	0						
D	280-51797-1	02/24/14	03/17/14	4	0	2	0	2	0	1	0	2	0	1	0	-	-	-	-	1	0	2	0	2	0	1	0	-	-	2	0	-	-						
F	280-51854-1	02/24/14	03/17/14	13	0	2	0	-	-	-	-	1	0	-	-	-	-	-	-	-	-	9	0	9	0	-	-	-	-	1	0	-	-						
Total	T/PG			44	0	17	0	15	0	8	0	15	0	4	0	1	0	3	0	13	0	26	0	26	0	5	0	7	0	17	0	4	0	0	0	0	0	205	

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	OPHS Pest. (8141A)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)		1,1-DMH (DVWC 0077)		Hydra-zine (DVWC)		MMH (DVWC 0077)																					
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	1	0	-	-	1	0	5	0	2	0	-	-	4	0	4	0	4	0																				
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-																				
C	280-51766-1	02/24/14	03/17/14	1	0	-	-	1	0	4	0	-	-	3	0	2	0	2	0	2	0																				
D	280-51797-1	02/24/14	03/17/14	-	-	-	-	-	-	4	0	1	0	1	0	1	0	1	0	1	0																				
E	280-51799-1/ H4B070408	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																					
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-																				
G	280-51855-1/ H4B100402	02/24/14	03/17/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-																					
Total	T/PG			2	0	2	0	2	0	13	0	3	0	8	0	7	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	

**EDD Client Select IV LDC #31380 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	Aik. (2320B)		NH <sub>3</sub> -N (4500-NH3 C)		Cl (300.0)		F (300.0)		NO <sub>3</sub> (300.0)		NO <sub>2</sub> (300.0)		SO <sub>4</sub> (300.0)		Cond. (2510B)		Total CN- (9012A)		Cr(VI) (7196A)		CLO <sub>4</sub> (314.0)		pH (9040B)		S= (4500 S2 D)		TDS (2540C)		Turb. (180.1)									
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51669-1	02/24/14	03/17/14	2	0	5	0	2	0	6	0	5	0	-	-	2	0	2	0	1	0	-	-	3	0	5	0	1	0	2	0	2	0	2	0						
B	280-51716-1	02/24/14	03/17/14	-	-	-	-	1	0	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	280-51766-1	02/24/14	03/17/14	-	-	2	0	-	-	3	0	4	0	2	0	-	-	-	-	1	0	-	-	2	0	2	0	1	0	-	-	-	-	-	-	-	-	-	-	-	
D	280-51797-1	02/24/14	03/17/14	-	-	1	0	-	-	1	0	1	0	-	-	-	-	-	-	-	-	1	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
F	280-51854-1	02/24/14	03/17/14	-	-	-	-	-	-	7	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total	T/PG			2	0	8	0	3	0	17	0	12	0	2	0	2	0	2	0	2	0	1	0	6	0	8	0	2	0	2	0	2	0	2	0	0	0	0	0	71	

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 5, 2014

**LDC Report Date:** March 7, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51855-1

**Sample Identification**

OS-28\_020514\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4042035	2/11/14	1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.31 pg/L 1.1 pg/L 6.8 pg/L 0.22 pg/L 0.31 pg/L 0.16 pg/L 0.40 pg/L 0.65 pg/L 1.2 pg/L 0.55 pg/L 3.7 pg/L	All samples in SDG 280-51855-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
OS-28_020514_01	1,2,3,4,6,7,8-HpCDD	0.27 pg/L	0.27U pg/L
	OCDD	4.8 pg/L	4.8U pg/L
	2,3,4,7,8-PeCDF	0.26 pg/L	0.26U pg/L
	1,2,3,4,7,8-HxCDF	0.21 pg/L	0.21U pg/L
	1,2,3,4,6,7,8-HpCDF	0.50 pg/L	0.50U pg/L
	1,2,3,4,7,8,9-HpCDF	0.36 pg/L	0.36U pg/L
	OCDF	2.0 pg/L	2.0U pg/L

No field blanks were identified in this SDG.

#### VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VIII. Regional Quality Assurance and Quality Control

Not applicable.

#### IX. Internal Standards

Internal standards data were not reviewed for Level II.

#### X. Target Compound Identifications

Raw data were not reviewed for this SDG.

#### XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51855-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XII. System Performance**

Raw data were not reviewed for this SDG.

## **XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51855-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51855-1	OS-28_020514_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51855-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51855-1	OS-28_020514_01	1,2,3,4,6,7,8-HpCDD OCDD 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.27U pg/L 4.8U pg/L 0.26U pg/L 0.21U pg/L 0.50U pg/L 0.36U pg/L 2.0U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51855-1**

No Sample Data Qualified in this SDG

LDC #: 31380G21

## VALIDATION COMPLETENESS WORKSHEET

Date: 3-4-14

SDG #: 280-51855-1/H4B100402

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: Jm

2nd Reviewer: JVG

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/5/14
II.	HRGC/HRMS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	N	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

water

1	OS-28_020514_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	4042035	30		40	

Notes:

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**VALIDATION FINDINGS WORKSHEET**

**Blanks**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

~~N~~ ~~N/A~~ Were all samples associated with a method blank?

~~N~~ ~~N/A~~ Was a method blank performed for each matrix and whenever a sample extraction was performed?

~~N~~ ~~N/A~~ Was the method blank contaminated?

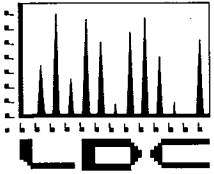
**Blank extraction date:** 02/11/14    **Blank analysis date:** 02/14/14    **Associated samples:** All Qual U

**Conc. units:** pg/L

Compound	Blank ID	Sample Identification							
	4042035	5x	1						
D	0.31*	1.55							
F	1.1	5.50	0.27*						
G	6.8*	34.0	4.8						
J	0.22*	1.10	0.26*						
K	0.31	1.55	0.21*						
L	0.16*	0.800							
M	0.40	2.00							
N	0.65*	3.25							
O	1.2	6.00	0.50*						
P	0.55*	2.75	0.36*						
Q	3.7*	18.50	2.0						

\*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 19, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the final validation report for the fractions listed below. This SDG was received on February 28, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31418:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14A148	Volatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, Semivolatiles, Pentachlorophenol, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons as Extractables, 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane, Organophosphorus Pesticides

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

### Sample Identification

HAR-16\_012914\_03  
TB\_HAR-16\_012914A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_HAR-16\_012914A was identified as a trip blank. No volatile contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
1,1,2-Trichloroethane	0.51	20U	190 (≤35)	NQ	-
1,1-Dichloroethane	0.95	20U	182 (≤35)	NQ	-
1,1-Dichloroethene	9.5	7.4	25 (≤35)	-	-

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
Carbon tetrachloride	0.24	20U	195 (≤35)	NQ	-
Chloroform	2.0	20U	164 (≤35)	NQ	-
cis-1,2-Dichloroethene	57	53	7 (≤35)	-	-
Tetrachloroethene	4.4	20U	128 (≤35)	NQ	-
trans-1,2-Dichloroethene	0.41	20U	192 (≤35)	NQ	-
Trichloroethene	4000	2700	39 (≤35)	J (all detects)	A
Trichlorofluoromethane	9.3	20U	73 (≤35)	NQ	-
1,1,2-Trichloro-1,2,2-trifluoroethane	1.1	100U	196 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.



**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03 TB_HAR-16_012914A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)
14A148	HAR-16_012914_03	Trichloroethene	J (all detects)	A	Field duplicates (RPD) (*XVI)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A1a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/06/14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1p
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	SW	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	SW	
XVI.	Field duplicates / Split	SW	S <sub>1</sub> = 1, HAR-16-012914-01 (280-51632-1) S <sub>2</sub> = 2
XVII.	Field blanks	ND	TB = 3

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*Water*

1	HAR-16_012914_03	11	21	31
2	<del>HAR-16_012914_03DL</del>	12	22	32
3	TB HAR-16_012914A	13	23	33
4		14	24	34
5		15	25	35
6		16	26	36
7		17	27	37
8		18	28	38
9		19	29	39
10		20	30	40

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

VALIDATION FINDINGS WORKSHEET  
Field Splits

Method: GCMS VOA (EPA SW 846 Method 8260B)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	HAR-16_012914_01	HAR-16_012914_03		
U	20U	0.51	190	NQ (<5xRL)
I	20U	0.95	182	NQ (<5xRL)
H	7.4	9.5	25	
O	20U	0.24	195	NQ (<5xRL)
K	20U	2.0	164	NQ (<5xRL)
QQQ	53	57	7	
AA	20U	4.4	128	NQ (<5xRL)
PPP	20U	0.41	192	NQ (<5xRL)
S	2700	<del>4000</del> 40	<del>147</del> 39	Jdets/A (*#)
KK	20U	9.3	73	NQ (<5xRL)
TTT	100U	1.1	196	NQ (<5xRL)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	HAR-16_012914_01	HAR-16_012914_03DL		
QQQ	53	65	20	
S	2700	4000	39	Jdets/A (*#)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03  
TB\_HAR-16\_012914A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Sample TB\_HAR-16\_012914A was identified as a trip blank. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No 1,4-dioxane was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
1,4-dioxane	8.8	8.0	10 (≤35)	-	-



**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 14A148**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
14A148	HAR-16_012914_03 TB_HAR-16_012914A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / split	SW	S = 1, HAR-16-0129 14-01 (250-516321)
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	MB LKIN	21		31	
2	TB_HAR-16_012914A	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A  
Y N N/A

Were field duplicate pairs identified in this SDG?  
Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( $\mu\text{g/L}$ )		RPD ( $\leq 35\%$ )	Qualifications (Parent only)
	1	HAR-16-012914-01		
1,4-dioxane	8.8	8.0	10	

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03  
TB\_HAR-16\_012914A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Sample TB\_HAR-16\_012914A was identified as a trip blank. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No 1,2,3-trichloropropane were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
1,2,3-Trichloropropane	0.0051	0.0043	17 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03 TB_HAR-16_012914A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG



LDC #: 31418A1c

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/06/14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: *MB*

2nd Reviewer: *A*

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM) *SW 846 Method 5266B-SIM*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	VCS (3)
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / Split	SW	S = 1 + HAR-16_012914-01 (280-51632-1)
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*Water*

1	HAR-16_012914_03	11	MBUW	21		31	
2	TB_HAR-16_012914A	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

**VALIDATION FINDINGS WORKSHEET**  
**Field Splits**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B/524.2)

Y  N  N/A  
 Y  N  N/A

Were field split pairs identified in this SDG?  
 Were target compounds detected in the field split pairs?

Compound	Concentration ( ug/L )		RPD ( ≤ 35% )	Qualifications (Parent only)
	1	HAR-16-012919-01		
XX	0.0051	0.0043	17	

Compound	Concentration ( )		RPD ( ≤ 35% )	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( ≤ 35% )	Qualifications (Parent only)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03  
TB\_HAR-16\_012914A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles, which are Acrolein and Acrylonitrile.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_HAR-16\_012914A was identified as a trip blank. No volatile contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No volatiles were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03 TB_HAR-16_012914A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG



**METHOD:** GC/MS Volatiles (Acrolein & Acrylonitrile) (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	S = 1, HAR-16_01 2014_01 (250-51632-1)
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	MBIKW	21		31	
2	TB HAR-16_012914A	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D1W (All samples in SDG 14A148)	1,4-Naphthoquinone	-	-	35 (≤30)	J (all detects) UJ (all non-detects)	P
	1,2,4,5-Tetrachlorobenzene	-	-	42 (≤30)		
	alpha-Picoline	-	-	40 (≤30)		
	Acetophenone	-	-	40 (≤30)		
	Ethyl Methanesulfonate	-	-	41 (≤30)		
	Hexachloropropene	-	-	46 (≤30)		
	Isosafrole	-	-	33 (≤30)		
	Methyl Methanesulfonate	-	-	40 (≤30)		
	N-Nitrosodiethylamine	-	-	40 (≤30)		
	N-Nitrosodi-n-butylamine	-	-	39 (≤30)		
	N-Nitrosomethylethylamine	-	-	34 (≤30)		
	N-Nitrosomorpholine	-	-	42 (≤30)		
	N-Nitrosopiperidine	-	-	40 (≤30)		
	N-Nitrosopyrrolidine	-	-	42 (≤30)		
	o-Toluidine	-	-	38 (≤30)		
	o,o,o-Triethylphosphorothioate	-	-	48 (≤30)		
	Pentachlorobenzene	-	-	41 (≤30)		
	Safrole	-	-	46 (≤30)		
Pentachloroethane	-	-	39 (≤30)			

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. System Performance

Raw data were not reviewed for this SDG.

### XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
N-Nitrosodimethylamine	6.1	7.0	14 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03	1,4-Naphthoquinone 1,2,4,5-Tetrachlorobenzene alpha-Picoline Acetophenone Ethyl Methanesulfonate Hexachloropropene Isosafrole Methyl Methanesulfonate N-Nitrosodiethylamine N-Nitrosodi-n-butylamine N-Nitrosomethylethylamine N-Nitrosomorpholine N-Nitrosopiperidine N-Nitrosopyrrolidine o-Toluidine o,o,o-Triethylphosphorothioate Pentachlorobenzene Safrole Pentachloroethane	J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD) (L)
14A148	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	SW	LCS / D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates /S	SW	S = 1 + HAR-16-012914_01 (280-516321)
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	MBLKW	21		31
2		12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40



## VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.



EMAX QUALITY CONTROL DATA  
LCS/LCD ANALYSIS

CLIENT: MWH  
PROJECT: BOEING SSFL - 2014Q1  
BATCH NO.: 14A148  
METHOD: 3520C/8270C

MATRIX: WATER % MOISTURE: NA  
DILUTION FACTOR: 1 1  
SAMPLE ID: MBLK1W  
LAB SAMP ID: SVB004WB A9B004WL A9B004WC  
LAB FILE ID: RBH062 RBH065 RBH066  
DATE EXTRACTED: 02/03/1414:45 02/03/1414:45 02/03/1414:45 DATE COLLECTED: NA  
DATE ANALYZED: 02/05/1416:13 02/05/1417:11 02/05/1417:30 DATE RECEIVED: 02/03/14  
PREP. BATCH: SVB004W SVB004W SVB004W  
CALIB. REF: RAH050 RAH050 RAH050

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
1,4-Naphthoquinone	ND	40.0	28.3J	71	40.0	40.3J	101	35*	10-150	30
Sym-Trinitrobenzene	ND	40.0	42.5J	106	40.0	47.6J	119	11	10-150	30
1,2,4,5-Tetrachlorobenzene	ND	40.0	24.6	61	40.0	37.8	94	42*	30-150	30
alpha-Naphthylamine	ND	40.0	32.0	80	40.0	37.0	93	14	30-150	30
Acetamidofluorene	ND	40.0	42.9J	107	40.0	46.3J	116	8	30-150	30
beta-Naphthylamine	ND	40.0	33.1	83	40.0	37.8	94	13	30-150	30
alpha-Picoline	ND	40.0	21.6	54	40.0	32.3	81	40*	10-150	30
o-Tolidine	ND	40.0	47.0	118	40.0	41.4	104	13	10-150	30
3-Methylcholanthrene	ND	40.0	32.7	82	40.0	33.9	85	4	30-150	30
4-Aminobiphenyl	ND	40.0	37.5J	94	40.0	40.7J	102	8	30-150	30
4-Nitroquinoline-1-oxide	ND	40.0	28.4J	71	40.0	29.8J	75	5	10-150	30
5-nitro-o-toluidine	ND	40.0	37.0	92	40.0	41.8	104	12	30-150	30
7,12-Dimethylbenz(a)anthracene	ND	40.0	37.6	94	40.0	40.2	101	7	30-150	30
a,a-Dimethylphenethylamine	ND	40.0	16.6J	41	40.0	20.0J	50	19	10-150	30
Acetophenone	ND	40.0	22.7	57	40.0	34.1	85	40*	30-150	30
Aramite	ND	40.0	44.9	112	40.0	46.8	117	4	30-150	30
Chlorobenzilate	ND	40.0	39.6	99	40.0	42.6	106	7	30-150	30
Diallate	ND	40.0	33.6	84	40.0	42.0	105	22	30-150	30
Ethyl Methanesulfonate	ND	40.0	23.4	59	40.0	35.5	89	41*	30-150	30
Hexachloropropene	ND	40.0	23.3J	58	40.0	37.1J	93	46*	30-150	30
Isodrin	ND	40.0	38.1	95	40.0	40.7	102	7	30-150	30
Isosafrole	ND	40.0	39.1	98	40.0	54.4	136	33*	30-150	30
Kepon	ND	40.0	33.8J	85	40.0	33.8J	84	0	10-150	30
Methapyrilene	ND	40.0	22.2J	56	40.0	19.6J	49	12	10-150	30
Methyl Methanesulfonate	ND	40.0	20.1	50	40.0	30.0	75	40*	30-150	30
N-Nitrosodiethylamine	ND	40.0	24.2	61	40.0	36.3	91	40*	30-150	30
N-Nitrosodi-n-butylamine	ND	40.0	26.8	67	40.0	39.9	100	39*	30-150	30
N-Nitrosomethylethylamine	ND	40.0	24.2	60	40.0	34.0	85	34*	30-150	30
N-Nitrosomorpholine	ND	40.0	26.1	65	40.0	40.2	100	42*	30-150	30
N-Nitrosopiperidine	ND	40.0	24.3	61	40.0	36.4	91	40*	30-150	30
N-Nitrosopyrrolidine	ND	40.0	24.1	60	40.0	37.0	93	42*	30-150	30
o-Tolidine	ND	40.0	25.8	64	40.0	37.9	95	38*	30-150	30
o,o,o-Triethylphosphorothioate	ND	40.0	22.9J	57	40.0	37.1J	93	48*	30-150	30
p-dimethylaminocazobenzene	ND	40.0	39.8	99	40.0	40.8	102	3	30-150	30
p-Phenylenediamine	ND	40.0	18.4J	46	40.0	19.7J	49	7	10-150	30
Pentachlorobenzene	ND	40.0	24.9	62	40.0	37.8	95	41*	30-150	30
Pentachloronitrobenzene	ND	40.0	40.3J	101	40.0	44.6J	112	10	30-150	30
Phenacetin	ND	40.0	39.6	99	40.0	42.7	107	8	30-150	30
Pronamide	ND	40.0	40.6	102	40.0	44.3	111	9	30-150	30
Safrol	ND	40.0	23.1	58	40.0	36.9	92	46*	30-150	30
Pentachloroethane	ND	40.0	22.9	57	40.0	34.1	85	39*	30-150	30

\* : Analyzed and reported from data file ID RBH067 and RBH068

LDC #: 31418A2a  
~~31861~~

**VALIDATION FINDINGS WORKSHEET**  
**Field Splits**

Page: 1 of 1  
 Reviewer: JVG  
 2nd reviewer: R

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

Y N N/A      Were field split pairs identified in this SDG?  
 Y N N/A      Were target compounds identified in the field split pairs?

Compound	Concentration ( <u>µg/L</u> )		RPD ( ≤ 35 % )	Qualifications (Parent only)
	1	HAR-16-012914-01		
000	6.1	7.0	14	

Compound	Concentration (            )		RPD ( ≤        % )	Qualifications (Parent only)

Compound	Concentration (            )		RPD ( ≤        % )	Qualifications (Parent only)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Pentachlorophenol

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Pentachlorophenol.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No pentachlorophenol was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XVI. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No pentachlorophenol was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
Pentachlorophenol - Data Qualification Summary - SDG 14A148**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
14A148	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Pentachlorophenol - Laboratory Blank Data Qualification Summary - SDG 14A148  
No Sample Data Qualified in this SDG**

**Boeing SSFL GW 1st Qtr 2014  
Pentachlorophenol - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS Pentachlorophenol (EPA SW846 Method 8270C )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	ICS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	S = 1 + HAR-16 - 012914_01 (780-51632-1)
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	HAR-16_012914_03	11	MBLKW	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

**XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

**XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

**XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No chlorinated pesticides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A3a

## VALIDATION COMPLETENESS WORKSHEET

Date: 3/06/14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: SVL

2nd Reviewer: A

**METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates (Split)	ND	S = 1, HAR-16-012914-01 (280-51632-1)
XVI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	MBLKW	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not reviewed in this SDG.

**XI. GPC Calibration**

GPC cleanup was not reviewed in this SDG.

**XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

**XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No polychlorinated biphenyls were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/26/14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: JVG

2nd Reviewer: A

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	CS (p)
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates (split)	ND	S = 1, HAR-16_012914_01 (280-51632-1)
XVI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	Ti	MB (K1W)	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 14, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03  
HAR-16\_012914\_03F  
HAR-16\_012914\_03MS  
HAR-16\_012914\_03MSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. ICPMS Tune**

ICP-MS tune data were not reviewed for Level V.

## **III. Calibration**

Calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks.

No field blanks were identified in this SDG.

## **V. ICP Interference Check Sample (ICS) Analysis**

Interference check sample analysis data were not reviewed for Level V.

## **VI. Matrix Spike Analysis**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For HAR-16\_012914\_03MSMS/MSD, no data were qualified for Calcium and Sodium percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## **VII. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Internal Standards (ICP-MS)**

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 14A148	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_01 (from SDG 280-51632-1) and HAR-16\_012914\_03 and samples HAW-16\_012914\_01F (from SDG 280-51632-1) and HAR-16\_012914\_03F were identified as split samples. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Arsenic	0.00057	0.000549	4 (≤35)	-	-
Barium	0.017	0.0168	1 (≤35)	-	-
Calcium	45	46.4	3 (≤35)	-	-
Chromium	0.00050U	0.000251	66 (≤35)	NQ	
Cobalt	0.000059	0.000200U	109 (≤35)	NQ	
Iron	0.18	0.0811	76 (≤35)	NQ	
Magnesium	10	8.43	17 (≤35)	-	-
Manganese	0.0028	0.00140	67 (≤35)	NQ	

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Nickel	0.00088	0.000669	27 (≤35)	-	-
Potassium	1.3	0.986	27 (≤35)	-	-
Selenium	0.0012	0.00127	6 (≤35)	-	-
Sodium	58	48.4	18 (≤35)	-	-
Strontium	0.21	0.199	5 (≤35)	-	-
Vanadium	0.0013	0.00130	0 (≤35)	-	-
Zinc	0.058	0.0568	2 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	HAW-16_012914_01F	HAR-16_012914_03F			
Arsenic	0.00059	0.000594	1 (≤35)	-	-
Barium	0.018	0.0166	8 (≤35)	-	-
Calcium	47	46.4	1 (≤35)	-	-
Magnesium	9.7	8.52	13 (≤35)	-	-
Manganese	0.00049	0.000234	71 (≤35)	NQ	
Nickel	0.0012	0.000683	55 (≤35)	NQ	
Potassium	1.2	1.02	16 (≤35)	-	-
Selenium	0.0014	0.00127	10 (≤35)	-	-
Sodium	54	47.4	13 (≤35)	-	-
Strontium	0.20	0.197	2 (≤35)	-	-
Vanadium	0.0012	0.00118	2 (≤35)	-	-
Zinc	0.064	0.0550	15 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 14A148**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03 HAR-16_012914_03F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A4

### VALIDATION COMPLETENESS WORKSHEET

Date: 3-10-14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

9MH

Reviewer: MG

2nd Reviewer: JTB

METHOD: Metals (EPA SW 846 Method 6020A/7000) 6020A/7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD Ca, Na - 4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	not utilized - u
XI.	ICP Serial Dilution	A <del>N</del>	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	split = 1 + HAR-16-012914-01
XIV.	Field Duplicates	SW	split = 2 + HAR-16-012914-01F
XV.	Field Blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SDG: 280-51632-1

Validated Samples:  
Water

1	HAR-16_012914_03	11		21		31	
2	HAR-16_012914_03F	12		22		32	
3	HAR-16_012914_03MS	13		23		33	
4	HAR-16_012914_03MSD	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: Samples appended with "F" were analyzed as dissolved



VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Metals

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	HAR-16_012914_01	1		
Arsenic	0.00057	0.000549	4	
Barium	0.017	0.0168	1	
Calcium	45	46.4	3	
Chromium	0.00050U	0.000251	66	No Qual.
Cobalt	0.000059	0.000200U	109	No Qual.
Iron	0.18	0.0811	76	No Qual.
Magnesium	10	8.43	17	
Manganese	0.0028	0.00140	67	No Qual.
Nickel	0.00088	0.000669	27	
Potassium	1.3	0.986	27	
Selenium	0.0012	0.00127	6	
Sodium	58	48.4	18	
Strontium	0.21	0.199	5	
Vanadium	0.0013	0.00130	0	
Zinc	0.058	0.0568	2	

Method: Metals

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	HAR-16_012914_01F	2		
Arsenic	0.00059	0.000594	1	
Barium	0.018	0.0166	8	
Calcium	47	46.4	1	
Magnesium	9.7	8.52	13	
Manganese	0.00049	0.000234	71	No Qual.
Nickel	0.0012	0.000683	55	No Qual.
Potassium	1.2	1.02	16	
Selenium	0.0014	0.00127	10	
Sodium	54	47.4	13	
Strontium	0.20	0.197	2	
Vanadium	0.0012	0.00118	2	
Zinc	0.064	0.0550	15	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Herbicides

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Herbicides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No herbicide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No herbicides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**METHOD:** GC Herbicides (EPA SW 846 Method 8151A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V61	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 10
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates (Split)	ND	S = 1, HAR-16_012914_01 (280-51672-1)
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	MBLKIW	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 14, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03  
HAR-16\_012914\_03MS  
HAR-16\_012914\_03DUP

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, Standard Method 4500-NH3 C for Ammonia as Nitrogen, EPA Method 300.0 for Chloride, Fluoride, Nitrate, and Sulfate, Standard Method 2510B for Conductivity, EPA SW 846 Method 9010/9014 for Cyanide, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, Standard Method 4500 S2 D for Sulfide, Standard Method 2540C for Total Dissolved Solids, and EPA Method 180.1 for Turbidity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 14A148	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
Alkalinity	120 mg/L	114 mg/L	5 (≤35)	-	-
Chloride	59 mg/L	54.3 mg/L	8 (≤35)	-	-
Fluoride	0.34 mg/L	0.342 mg/L	1 (≤35)	-	-
Nitrate	29 mg/L	28.2 mg/L	3 (≤35)	-	-
Perchlorate	320 ug/L	330 ug/L	3 (≤35)	-	-
pH	6.60 units	6.40 units	3 (≤35)	-	-
Specific Conductance	550 umhos/cm	567 umhos/cm	3 (≤35)	-	-
Sulfate	63 mg/L	53.9 mg/L	16 (≤35)	-	-
TDS	360 mg/L	381 mg/L	6 (≤35)	-	-
Turbidity	2.6 NTU	2.57 NTU	1 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 14A148**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
14A148	HAR-16_012914_03	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A6

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-10-14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: MG

2nd Reviewer: JTC

MK

**METHOD:** Alkalinity (SM2320B), Ammonia-N (SM4500-NH3 C), Chloride, Fluoride, Nitrate, Sulfate (EPA Method 300.0), Conductivity (SM2510B), Cyanide (EPA SW846 Method 9010/9014), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D), TDS (SM2540C), Turbidity (EPA Method 180.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	split = 1 + HAR-16-012914-01
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SDG: 280-51632-1

Validated Samples:

water

1	HAR-16_012914_03	11		21		31	
2	HAR-16_012914_03MS	12		22		32	
3	HAR-16_012914_03DUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	HAR-16_012914_01	1		
Alkalinity	120	114	5	
Chloride	59	54.3	8	
Fluoride	0.34	0.342	1	
Nitrate as <del>NO3</del>	29	28.2	3	
Perchlorate (ug/L)	320	330	3	
pH (pH units)	6.60	6.40	3	
Specific Conductance (umhos/cm)	550	567	3	
Sulfate	63	53.9	16	
TDS	360	381	6	
Turbidity (NTU)	2.6	2.57	1	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No total petroleum hydrocarbons as extractables were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A8  
 SDG #: 14A148  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/06/14  
 Page: 1 of 1  
 Reviewer: SVG  
 2nd Reviewer: A

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/29/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VII.	Laboratory control samples	A	<u>LCS / D</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates <u>1 Sp14</u>	ND	<u>S = 1, HAR-16-012914-01 (280-51632-1)</u>
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	<u>MBLKIW</u>	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 10, 2014  
**Matrix:** Water  
**Parameters:** 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03  
TB\_HAR-16\_012914A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 504.1 for 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found in the method blanks.

Sample TB\_HAR-16\_012914A was identified as a trip blank. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No 1,2-dibromoethane or 1,2-dibromo-3-chloropropane was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Data Qualification Summary -  
 SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03 TB_HAR-16_012914A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Laboratory Blank Data  
 Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane - Field Blank Data Qualification  
 Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A10

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/06/14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: SVG  
2nd Reviewer: [Signature]

**METHOD:** GC 1,2-Dibromoethane & 1,2-Dibromo-3-chloropropane (EPA Method 504.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1/0
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	S = 1, HAR-16_012914_01 (280-51632-1)
XIII.	Field blanks	ND	TB = 2

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	MB LK W	21		31	
2	TB HAR-16_012914A	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** March 10, 2014

**Matrix:** Water

**Parameters:** Organophosphorus Pesticides

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A148

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8141A for Organophosphorus Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No organophosphorus pesticide contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. The percent recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. System Performance**

Raw data were not reviewed for this SDG.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No organophosphorus pesticides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Data Qualification Summary - SDG 14A148**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Laboratory Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Organophosphorus Pesticides - Field Blank Data Qualification Summary - SDG 14A148**

No Sample Data Qualified in this SDG

LDC #: 31418A17

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/06/14

SDG #: 14A148

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: N/A  
2nd Reviewer: [Signature]

**METHOD:** GC Organophosphorus Pesticides (EPA SW 846 Method 8141A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1/2
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates (split)	ND	S = 1, HAR-16-012914-01
XIII.	Field blanks	N	(280-516327)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet  
ND = No compounds detected  
R = Rinsate  
FB = Field blank  
D = Duplicate  
TB = Trip blank  
EB = Equipment blank

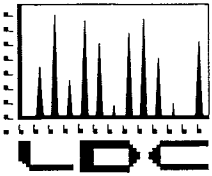
Validated Samples:

Water

1	HAR-16_012914_03	11	MBL(w)	21		31
2		12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 26, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

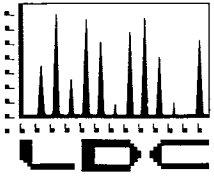
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31419:

<u>SDG #</u>	<u>Fraction</u>
280-51905-1, 280-51958-1 280-51987-1, 280-52029-1 280-52215-1, 280-51988-1 280-52090-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, Metals, Wet Chemistry, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Chlorinated Pesticides, Polychlorinated Biphenyls, Formaldehyde, Perchlorate, Dioxins/Dibenofurans, N-Nitrosodimethylamine

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', written in a cursive style.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 6, 2014

**LDC Report Date:** March 17, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51905-1

**Sample Identification**

RD-16\_020614\_01  
TB\_RD-16\_020614  
RD-92\_020614\_01  
RD-14\_020614\_01  
TB\_RD-14\_020614  
WS-07\_020614\_01  
RD-33B\_020614\_01  
TB\_RD-33B\_020614  
RD-33C\_020614\_01  
RD-16\_020614\_01MS  
RD-16\_020614\_01MSD

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-212579/7	2/12/14	Acetone	2.30 ug/L	RD-16_020614_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Samples TB\_RD-16\_020614, TB\_RD-14\_020614, and TB\_RD-33B\_020614 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-16_020614	2/6/14	Acetone	3.3 ug/L	RD-16_020614_01 RD-92_020614_01
TB_RD-14_020614	2/6/14	Acetone	3.0 ug/L	RD-14_020614_01 WS-07_020614_01
TB_RD-33B_020614	2/6/14	Acetone	2.8 ug/L	RD-33B_020614_01 RD-33C_020614_01

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	WS-07_020614_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	WS-07_020614_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
WS-07_020614_01	Acetone	2.8 ug/L	10U ug/L
RD-14_020614_01	Acetone	2.4 ug/L	10U ug/L
RD-33B_020614_01	Acetone	2.1 ug/L	10U ug/L
RD-33C_020614_01	Acetone	2.1 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-16_020614_01	Toluene-d8	124 (88-110)	All TCL compounds	J (all detects)	A
MB 213218/5	Toluene-d8	119 (88-110)	All TCL compounds	J (all detects)	P

**VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

**VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

**IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51905-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

**XIV. System Performance**

Raw data were not reviewed for this SDG.

**XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.



## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51905-1	RD-16_020614_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51905-1	RD-16_020614_01 TB_RD-16_020614 RD-92_020614_01 RD-14_020614_01 TB_RD-14_020614 WS-07_020614_01 RD-33B_020614_01 TB_RD-33B_020614 RD-33C_020614_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51905-1	WS-07_020614_01	Acetone	10U ug/L	A	T, F
280-51905-1	RD-14_020614_01	Acetone	10U ug/L	A	T
280-51905-1	RD-33B_020614_01	Acetone	10U ug/L	A	T
280-51905-1	RD-33C_020614_01	Acetone	10U ug/L	A	T

LDC #: 31419A1a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/14/14

SDG #: 280-51905-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: JG

2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/06/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2 5 8 FB = FB_021214-19

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

(280-52081-1)  
EB = EB\_RD-07\_020714  
(280-51958-1)

Validated Samples:

Water

1	RD-16_020614_01	11	RD-16_020614_01MSD	21	MB 280-213218/5	31	
2	TB_RD-16_020614	12		22	↓ -212579/7	32	
3	RD-92_020614_01	13		23		33	
4	RD-14_020614_01	14		24		34	
5	TB_RD-14_020614	15		25		35	
6	WS-07_020614_01	16		26		36	
7	RD-33B_020614_01	17		27		37	
8	TB_RD-33B_020614	18		28		38	
9	RD-33C_020614_01	19		29		39	
10	RD-16_020614_01MS	20		30		40	

VOC's

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31419 A1a

### VALIDATION FINDINGS WORKSHEET

Page: 1 of 1

#### Blanks

Reviewer: JVG

2nd Reviewer: *[Signature]*

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?

Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 2/12/14

Conc. units: ug/L

Associated Samples: 1 (ND)

Compound	Blank ID	Sample Identification							
MB	286-21257	/7							
F	2.30								

Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 3149 Air

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 2  
Reviewer: JVG  
2nd Reviewer:     

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y/N/N/A Were field blanks identified in this SDG?  
Y/N/N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/12/14 ; 2/07/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: EB Associated Samples: 6 (F)

Compound	FB (02/12) Blank ID	EB (2/07)	Sample Identification							
	FB_021214_19	EB_RD-07-020714	6							
K	0.50									
F		2.0	2.8/104							

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/06/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 1, 3 (ND)

Compound	Blank ID	Sample Identification								
	2									
F	3.3									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31419 A1a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 2 of 2

Reviewer: JVG

2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/06/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 4, 6 (T)

Compound	Blank ID	Sample Identification							
	<u>45</u>	<u>4</u>	<u>6</u>						
<u>F</u>	<u>3.0</u>	<u>2.4/bu</u>	<u>2.8/10u</u>						

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/06/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 7, 9 (T)

Compound	Blank ID	Sample Identification							
	<u>48</u>	<u>7</u>	<u>9</u>						
<u>F</u>	<u>2.8</u>	<u>2.1/10u</u>	<u>2.1/10u</u>						

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 6, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51905-1

**Sample Identification**

RD-33B\_020614\_01  
TB\_RD-33B\_020614  
RD-33C\_020614\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Sample TB\_RD-33B\_020614 was identified as a trip blank. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51905-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51905-1	RD-33B_020614_01 TB_RD-33B_020614 RD-33C_020614_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

LDC #: 31419A1b  
 SDG #: 280-51905-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/19/14  
 Page: 1 of 1  
 Reviewer: VLB  
 2nd Reviewer: A

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/06/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	RD-33B_020614_01	11	MP 280-2/2167/1	21		31	
2	TB_RD-33B_020614	12		22		32	
3	RD-33C_020614_01	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 6, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51905-1

**Sample Identification**

RD-14\_020614\_01

TB\_RD-14\_020614

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Sample TB\_RD-14\_020614 was identified as a trip blank. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51905-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51905-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51905-1	RD-14_020614_01 TB_RD-14_020614	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

LDC #: 31419A1c  
 SDG #: 280-51905-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: K

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/06/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	Not req'd.
VII.	Matrix spike/Matrix spike duplicates	N	Not req'd.
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-14_020614_01	11	MB 440-161061/4	21		31	
2	TB_RD-14_020614	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51905-1

### Sample Identification

RD-16\_020614\_01  
RD-92\_020614\_01  
RD-14\_020614\_01  
WS-07\_020614\_01  
RD-33B\_020614\_01  
RD-33C\_020614\_01  
RD-16\_020614\_01F  
RD-92\_020614\_01F  
RD-14\_020614\_01F  
WS-07\_020614\_01F  
RD-33B\_020614\_01F  
RD-33C\_020614\_01F  
RD-33C\_020614\_01FMS  
RD-33C\_020614\_01FMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6020 for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Thallium	0.0000520 mg/L	RD-16_020614_01 RD-92_020614_01 RD-14_020614_01 WS-07_020614_01 RD-33B_020614_01 RD-33C_020614_01
PB (prep blank)	Thallium	0.0000530 mg/L	RD-16_020614_01F RD-92_020614_01F RD-14_020614_01F WS-07_020614_01F RD-33B_020614_01F RD-33C_020614_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-16_020614_01	Thallium	0.00014 mg/L	0.00014U mg/L
RD-16_020614_01F	Thallium	0.00015 mg/L	0.00015U mg/L

Samples EB\_RD-07\_020714 and EB\_RD-07\_020714F (both from SDG 280-51958-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	WS-07_020614_01
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	WS-07_020614_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel	0.00041 mg/L	WS-07_020614_01
FB_021214_19F	2/12/14	Nickel	0.00048 mg/L	WS-07_020614_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
WS-07_020614_01F	Nickel Zinc	0.00059 mg/L 0.0054 mg/L	0.00059U mg/L 0.0054U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.



## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51905-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51905-1	RD-16_020614_01 RD-92_020614_01 RD-14_020614_01 WS-07_020614_01 RD-33B_020614_01 RD-33C_020614_01 RD-16_020614_01F RD-92_020614_01F RD-14_020614_01F WS-07_020614_01F RD-33B_020614_01F RD-33C_020614_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51905-1	RD-16_020614_01	Thallium	0.00014U mg/L	A	B
280-51905-1	RD-16_020614_01F	Thallium	0.00015U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51905-1	WS-07_020614_01F	Nickel Zinc	0.00059U mg/L 0.0054U mg/L	A	F

LDC #: 31419A4

VALIDATION COMPLETENESS WORKSHEET

Date: 3-11-14

SDG #: 280-51905-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: MG

2nd Reviewer: JVC

METHOD: Metals (EPA SW 846 Method 6020A-7000) 6020 6020

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Table with 4 columns: Validation Area, Grade, Comments, and Sampling dates. Rows include Technical holding times, ICP/MS Tune, Calibration, Blanks, ICP Interference Check Sample (ICS) Analysis, Matrix Spike Analysis, Duplicate Sample Analysis, Laboratory Control Samples (LCS), Internal Standard (ICP-MS), Furnace Atomic Absorption QC, ICP Serial Dilution, Sample Result Verification, Overall Assessment of Data, Field Duplicates, and Field Blanks.

Note: A = Acceptable, N = Not provided/applicable, SW = See worksheet, ND = No compounds detected, D = Duplicate, R = Rinsate, TB = Trip blank, FB = Field blank, EB = Equipment blank. Includes handwritten notes: FB = FB-021214-19F, EB = EB-RD-07-020714 (SDG: 280-51958-1), EB = EB-RD-07-020714F.

Validated Samples: all water

Table with 8 columns: Sample ID, Sample Name, Sample Number, Sample Name, Sample Number, Sample Name, Sample Number, Sample Name. Rows 1-10 list various sample IDs and names like RD-16\_020614\_01, RD-92\_020614\_01, RD-14\_020614\_01, WS-07\_020614\_01, RD-33B\_020614\_01, RD-33C\_020614\_01, RD-16\_020614\_01F, RD-92\_020614\_01F, RD-14\_020614\_01F, WS-07\_020614\_01F.

Notes: Samples appended with "F" were analyzed as dissolved



LDC #: 31419A4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1-6 Qual: U (B)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: JG

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1									
Tl		0.0000520		0.00026	0.00014									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 7-12 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	7									
Tl		0.0000530		0.00026	0.00015									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

**N** / **N/A** Were field blanks identified in this SDG?  
 **N** / **N/A** Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate Other **EB** Associated Samples: 4 (>5x or ND)

Analyte	Blank ID	Blank ID	Sample Identification														
	FB_021214_19 sampled: 2/12/14	EB_RD-07_020714 sampled: 2/7/14	Action Level	No Qual.													
Sb		0.00044	0.0022														
Cr		0.00061	0.0030														
Cu		0.00078	0.0039														
Ni	0.00041		0.0020														
Zn		0.0028	0.0140														

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate Other **EB** Associated Samples: 10 Qual: U (F)

Analyte	Blank ID	Blank ID	Sample Identification														
	FB_021214_19F sampled: 2/12/14	EB_RD-07_020714 F sampled: 2/7/14	Action Level	10													
Sb		0.00045	0.0022														
Cu		0.00080	0.0040														
Ni	0.00048		0.0024	0.00059													
Zn		0.0026	0.0130	0.0054													

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 6, 2014

**LDC Report Date:** March 18, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51905-1

**Sample Identification**

RD-14\_020614\_01

RD-33B\_020614\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate as Nitrogen.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Fluoride	0.0902 mg/L	All samples in SDG 280-51905-1

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-14_020614_01	Fluoride	0.27 mg/L	0.27U mg/L
RD-33B_020614_01	Fluoride	0.44 mg/L	0.44U mg/L

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51905-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51905-1	RD-14_020614_01 RD-33B_020614_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51905-1	RD-14_020614_01	Fluoride	0.27U mg/L	A	B
280-51905-1	RD-33B_020614_01	Fluoride	0.44U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

LDC #: 31419A6  
 SDG #: 280-51905-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-11-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JG

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-6-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	N	<u>client specified</u>
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples:  
all water

1	RD-14_020614_01	11		21		31	
2	RD-33B_020614_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	<u>PBW</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

METHOD: Inorganics, Method 300.0

Conc. units: mg/L Associated Samples: all Qual: U (B)

Analyte	Blank ID	Blank ID	Blank Action Limit												
	PB	ICB/CCB (mg/L)		1	2										
F	0.0902		0.451	0.27	0.44										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 6, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51905-1

**Sample Identification**

RD-33B\_020614\_01

RD-33C\_020614\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. LC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D 280-212894/15,16 (All samples in SDG 280-51905-1)	Perchlorate	-	405 (80-120)	128 (≤15)	J (all detects) UJ (all non-detects)	P

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51905-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51905-1**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51905-1	RD-33B_020614_01 RD-33C_020614_01	Perchlorate	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)(RPD) (L)
280-51905-1	RD-33B_020614_01 RD-33C_020614_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/06/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	Not req'd.
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	SW	LCS 1/3
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

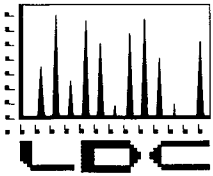
Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Water

1	RD-33B_020614_01	11	MB 280-212894/14	21		31	
2	RD-33C_020614_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 26, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

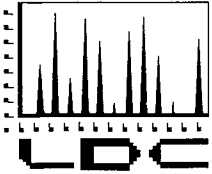
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### **LDC Project # 31419:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51905-1, 280-51958-1 280-51987-1, 280-52029-1 280-52215-1, 280-51988-1 280-52090-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, Metals, Wet Chemistry, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Chlorinated Pesticides, Polychlorinated Biphenyls, Formaldehyde, Perchlorate, Dioxins/Dibenofurans, N-Nitrosodimethylamine

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31419 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																									
LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C -SIM)		NDMA (1625C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Sb (6020)		Diss. Sb (6020)		GRO (8015B)		DRO (8015B)													
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																									
A	280-51905-1	03/04/14	03/25/14	9	0	2	0	3	0	-	-	-	-	-	-	-	6	0	6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
B	280-51958-1	03/04/14	03/25/14	12	0	-	-	5	0	-	-	-	-	-	-	-	9	0	9	0	-	-	-	-	-	9	0	6	0												
C	280-51987-1	03/04/14	03/25/14	10	0	-	-	-	-	1	0	-	-	0	0	0	0	6	0	6	0	1	0	1	0	2	0	1	0												
C	280-51987-1	03/04/14	03/25/14	2	0	-	-	-	-	4	0	-	-	1	0	3	0	4	0	4	0	0	0	0	0	0	0	4	0												
E	280-52029-1	03/04/14	03/25/14	13	0	-	-	3	0	-	-	-	-	-	-	-	10	0	10	0	-	-	-	-	4	0	2	0													
G	280-52215-1	03/04/14	03/25/14	2	0	-	-	2	0	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total																																									173

EDD Client Select IV LDC #31419 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																									
LDC	SDG#	DATE REC'D	(3) DATE DUE	Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		F (300.0)		NO <sub>3</sub> (300.0)		NO <sub>2</sub> (300.0)																											
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil																																									
A	280-51905-1	03/04/14	03/25/14	-	-	-	-	2	0	2	0	2	0	-	-																										
B	280-51958-1	03/04/14	03/25/14	-	-	-	-	4	0	3	0	5	0	-	-																										
C	280-51987-1	03/04/14	03/25/14	-	-	1	0	2	0	2	0	3	0	0	0																										
C	280-51987-1	03/04/14	03/25/14	-	-	2	0	2	0	1	0	1	0	1	0																										
D	280-51988-1	03/04/14	03/25/14	3	0	-	-	-	-	-	-	-	-	-	-																										
E	280-52029-1	03/04/14	03/25/14	-	-	-	-	1	0	4	0	2	0	-	-																										
F	280-52090-1	03/04/14	03/25/14	1	0	-	-	-	-	-	-	-	-	-	-																										
Total																																									44

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs 31419ST-TA.wpd



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 7, 2014

**LDC Report Date:** March 18, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51958-1

### Sample Identification

EB\_RD-07\_020714  
RD-07\_020714\_01A  
TB\_RD-07\_020714A  
RD-21\_020714\_01  
RD-20\_020714\_01  
RD-65\_020714\_01  
TB\_RD-65\_020714  
RD-18\_020714\_01  
RD-18\_020714\_36  
RD-29\_020714\_01  
TB\_RD-29\_020714  
RD-86\_020714\_01  
RD-65\_020714\_01MS  
RD-65\_020714\_01MSD

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound	Concentration	Associated Samples
MB 280-212579/7	2/12/14	Acetone	2.30 ug/L	All samples in SDG 280-51958-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
EB_RD-07_020714	Acetone	2.0 ug/L	10U ug/L
RD-07_020714_01A	Acetone	2.5 ug/L	10U ug/L
TB_RD-07_020714A	Acetone	3.0 ug/L	10U ug/L
RD-21_020714_01	Acetone	2.7 ug/L	10U ug/L
RD-20_020714_01	Acetone	1.9 ug/L	10U ug/L

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-65_020714_01	Acetone	2.0 ug/L	10U ug/L
TB_RD-65_020714	Acetone	2.6 ug/L	10U ug/L
RD-18_020714_01	Acetone	3.7 ug/L	10U ug/L
RD-18_020714_36	Acetone	2.1 ug/L	10U ug/L
RD-29_020714_01	Acetone	3.2 ug/L	10U ug/L
TB_RD-29_020714	Acetone	2.9 ug/L	10U ug/L
RD-86_020714_01	Acetone	2.3 ug/L	10U ug/L

Samples TB\_RD-07\_020714A, TB\_RD-65\_020714, and TB\_RD-29\_020714 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-07_020714A	2/7/14	Acetone	3.0 ug/L	EB_RD-07_020714 RD-07_020714_01A RD-21_020714_01
TB_RD-65_020714	2/7/14	Acetone	2.6 ug/L	RD-20_020714_01 RD-65_020714_01
TB_RD-29_020714	2/7/14	Acetone	2.9 ug/L	RD-18_020714_01 RD-18_020714_36 RD-29_020714_01 RD-86_020714_01

Sample EB\_RD-07\_020714 was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	RD-07_020714_01A RD-21_020714_01 RD-65_020714_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	RD-07_020714_01A RD-21_020714_01 RD-65_020714_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
EB_RD-07_020714	Acetone	2.0 ug/L	10U ug/L
RD-07_020714_01A	Acetone	2.5 ug/L	10U ug/L
RD-21_020714_01	Acetone	2.7 ug/L	10U ug/L
RD-65_020714_01	Acetone	2.0 ug/L	10U ug/L
RD-20_020714_01	Acetone	1.9 ug/L	10U ug/L
RD-18_020714_01	Acetone	3.7 ug/L	10U ug/L
RD-18_020714_36	Acetone	2.1 ug/L	10U ug/L
RD-29_020714_01	Acetone	3.2 ug/L	10U ug/L
RD-86_020714_01	Acetone	2.3 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-07_020714_01A	Toluene-d8	112 (88-110)	Trichloroethene	J (all detects)	A
RD-21_020714_01	Toluene-d8	112 (88-110)	All TCL compounds except Trichloroethene	J (all detects)	A

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-65_020714_01	Toluene-d8	116 (88-110)	All TCL compounds except Trichloroethene	J (all detects)	A
RD-65_020714_01	Toluene-d8	112 (88-110)	Trichloroethene	J (all detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-65_020714_01MS/MSD (RD-65_020714_01)	1,1-Dichloroethene	13 (71-136)	13 (71-136)	-	J (all detects) UJ (all non-detects)	A

For RD-65\_020714\_01MS/MSD, no data were qualified for Trichloroethene percent recoveries outside the QC Limits since the parent sample results were greater than 4X the spike concentration.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51958-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

### XIV. System Performance

Raw data were not reviewed for this SDG.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples RD-18\_020714\_01 and RD-18\_020714\_36 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01	RD-18_020714_36			
Acetone	3.7	2.1	55 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51958-1	RD-07_020714_01A	Trichloroethene	J (all detects)	A	Surrogate spikes (%R) (S)
280-51958-1	RD-21_020714_01	All TCL compounds except Trichloroethene	J (all detects)	A	Surrogate spikes (%R) (S)
280-51958-1	RD-65_020714_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51958-1	RD-65_020714_01	1,1-Dichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A TB_RD-07_020714A RD-21_020714_01 RD-20_020714_01 RD-65_020714_01 TB_RD-65_020714 RD-18_020714_01 RD-18_020714_36 RD-29_020714_01 TB_RD-29_020714 RD-86_020714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51958-1	EB_RD-07_020714	Acetone	10U ug/L	A	B
280-51958-1	RD-07_020714_01A	Acetone	10U ug/L	A	B
280-51958-1	TB_RD-07_020714A	Acetone	10U ug/L	A	B
280-51958-1	RD-21_020714_01	Acetone	10U ug/L	A	B
280-51958-1	RD-20_020714_01	Acetone	10U ug/L	A	B
280-51958-1	RD-65_020714_01	Acetone	10U ug/L	A	B
280-51958-1	TB_RD-65_020714	Acetone	10U ug/L	A	B
280-51958-1	RD-18_020714_01	Acetone	10U ug/L	A	B



SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51958-1	RD-18_020714_36	Acetone	10U ug/L	A	B
280-51958-1	RD-29_020714_01	Acetone	10U ug/L	A	B
280-51958-1	TB_RD-29_020714	Acetone	10U ug/L	A	B
280-51958-1	RD-86_020714_01	Acetone	10U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51958-1	EB_RD-07_020714	Acetone	10U ug/L	A	T
280-51958-1	RD-07_020714_01A	Acetone	10U ug/L	A	T, F
280-51958-1	RD-21_020714_01	Acetone	10U ug/L	A	T, F
280-51958-1	RD-65_020714_01	Acetone	10U ug/L	A	T, F
280-51958-1	RD-20_020714_01	Acetone	10U ug/L	A	T
280-51958-1	RD-18_020714_01	Acetone	10U ug/L	A	T
280-51958-1	RD-18_020714_36	Acetone	10U ug/L	A	T
280-51958-1	RD-29_020714_01	Acetone	10U ug/L	A	T
280-51958-1	RD-86_020714_01	Acetone	10U ug/L	A	T

LDC #: 31419B1a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/14/14

SDG #: 280-51958-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: SW  
2nd Reviewer: A

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/07/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 8, 9
XVII.	Field blanks	SW	EB = 1 TB = 3, 7, 11 FB = FB_021214-19

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

(280-52081-1)

Validated Samples:

Water

1	EB_RD-07_020714	11	TB_RD-29_020714	21	MB 980-212579/7	31
2	RD-07_020714_01A	12	RD-86_020714_01	22		32
3	TB_RD-07_020714A	13	RD-65_020714_01MS	23		33
4	RD-21_020714_01	14	RD-65_020714_01MSD	24		34
5	RD-20_020714_01	15		25		35
6	RD-65_020714_01	16		26		36
7	TB_RD-65_020714	17		27		37
8	RD-18_020714_01	18		28		38
9	RD-18_020714_36	19		29		39
10	RD-29_020714_01	20		30		40

## TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

\* = System performance check compounds (SPCC) for RRF ; \*\* = Calibration check compounds (CCC) for %RSD.

LDC #: 31419 B1a

## VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1

Reviewer: JVG

2nd Reviewer:                     

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y/N/N/A Was a method blank associated with every sample in this SDG?

Y/N/N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

Y/N/N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 2/12/14

Conc. units: ug/l

Associated Samples: All (B)

Compound	Blank ID	Sample Identification								
		1	2	3	4	5	6	7	8	9
F	MB 280-212579/2.30	2.0/104	2.5/104	3.0/104	2.7/104	1.9/104	2.0/104	2.6/104	3.7/104	2.1/104

Blank analysis date: \_\_\_\_\_ Same as above

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification								
		10	11	12						
F	MB 280-212579/2.30	3.2/104	2.9/104	2.3/104						

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 3/4/19 B1A

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 2

Reviewer: JVG

2nd Reviewer: *[Signature]*

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y / N / N/A Were field blanks identified in this SDG?

Y / N / N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/12/19 ; 2/07/19

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: EB Associated Samples: 2, 4, 6 (F)

2.5  
2.0

Compound	FB (2/12)	EB (2/07)				Sample Identification			
	Blank ID	1	2	4	6				
	FB-021219-19								
K	0.50								
F		2.0/104	2.5/104	2.7/104	2.0/104				

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/07/19

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 1, 2, 4 (T)

Compound	Blank ID	Sample Identification			
		1	2	4	
	3				
F	3.0	2.0/104	2.5/104	2.1/104	

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31419B/a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Reviewer: JVG

2nd Reviewer: *[Signature]*

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y/N/N/A Were field blanks identified in this SDG?

Y/N/N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/07/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 5, 6 (T)

Compound	Blank ID	Sample Identification							
	7	5	6						
F	2.6	1.9/104	2.0/104						

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/07/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 8-10, 12 (T)

Compound	Blank ID	Sample Identification							
	11	8	9	10	12				
F	2.9	3.7/104	2.1/104	3.2/104	2.3/104				

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

## VALIDATION FINDINGS WORKSHEET

### Surrogate Spikes

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all surrogate %R within QC limits?

Y N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications Code: <u>S</u>
		2	TOL	112 (88-110)	J detcs / A (qual S only)
		4		112 ( )	(qual all except S)
		6		116 ( )	↓
		6	↓	112 ( )	↓ (qual S only)
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	

QC Limits (Water)

- |                                    |        |
|------------------------------------|--------|
| SMC1 (TOL) = Toluene-d8            | 88-110 |
| SMC2 (BFB) = Bromofluorobenzene    | 86-115 |
| SMC3 (DCE) = 1,2-Dichloroethane-d4 | 80-120 |
| SMC4 (DFM) = Dibromofluoromethane  | 86-118 |





**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field duplicate pairs identified in this SDG?  
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( $\mu\text{g/L}$ )		RPD ( $\leq 35\%$ )	Qualifications (Parent only)
	8	9		
F	3.7	2.1	55	NQ ( $>5 \times \text{RL}$ )

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 7, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51958-1

### Sample Identification

RD-65\_020714\_01  
TB\_RD-65\_020714  
RD-18\_020714\_01  
RD-18\_020714\_36  
TB\_RD-18\_020714  
RD-65\_020714\_01MS  
RD-65\_020714\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-65\_020714 and TB\_RD-18\_020714 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51958-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

Samples RD-18\_020714\_01 and RD-18\_020714\_36 were identified as field duplicates. No 1,4-dioxane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**1,4-Dioxane - Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51958-1	RD-65_020714_01 TB_RD-65_020714 RD-18_020714_01 RD-18_020714_36 TB_RD-18_020714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

LDC #: 31419B1b

## VALIDATION COMPLETENESS WORKSHEET

Date: 3/14/14

SDG #: 280-51958-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: JG  
2nd Reviewer: JC

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/07/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	VCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	D = 3, 4
XVII.	Field blanks	ND	TB = 2, 5

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

VHAC

1	RD-65_020714_01	11	TB 280-212376/5	21		31	
2	TB RD-65_020714	12		22		32	
3	RD-18_020714_01	13		23		33	
4	RD-18_020714_36	14		24		34	
5	TB RD-18_020714	15		25		35	
6	RD-65_020714_01MS	16		26		36	
7	RD-65_020714_01MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51958-1

### Sample Identification

EB_RD-07_020714	RD-18_020714_36MS
RD-07_020714_01A	RD-18_020714_36MSD
RD-21_020714_01	RD-65_020714_01FMS
RD-20_020714_01	RD-65_020714_01FMSD
RD-65_020714_01	RD-18_020714_36FMS
RD-18_020714_01	RD-18_020714_36FMSD
RD-18_020714_36	
RD-29_020714_01	
RD-86_020714_01	
EB_RD-07_020714F	
RD-07_020714_01AF	
RD-21_020714_01F	
RD-20_020714_01F	
RD-65_020714_01F	
RD-18_020714_01F	
RD-18_020714_36F	
RD-29_020714_01F	
RD-86_020714_01F	
RD-65_020714_01MS	
RD-65_020714_01MSD	

Samples appended with "F" were analyzed for dissolved metals



## Introduction

This data review covers 26 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 6020 for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.502 mg/L	RD-18_020714_01F RD-18_020714_36F RD-86_020714_01F
PB (prep blank)	Tin	0.000803 mg/L	EB_RD-07_020714F RD-07_020714_01AF RD-21_020714_01F RD-20_020714_01F RD-65_020714_01F RD-18_020714_01F RD-18_020714_36F RD-29_020714_01F RD-86_020714_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Samples EB\_RD-07\_020714 and EB\_RD-07\_020714F were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	RD-07_020714_01A RD-21_020714_01 RD-65_020714_01

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	RD-07_020714_01AF RD-21_020714_01F RD-65_020714_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel	0.00041 mg/L	RD-07_020714_01A RD-21_020714_01 RD-65_020714_01
FB_021214_19F	2/12/14	Nickel	0.00048 mg/L	RD-07_020714_01AF RD-21_020714_01F RD-65_020714_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-07_020714_01A	Copper Nickel	0.00093 mg/L 0.00057 mg/L	0.00093U mg/L 0.00057U mg/L
RD-21_020714_01	Nickel	0.00061 mg/L	0.00061U mg/L
RD-65_020714_01	Copper Nickel	0.00087 mg/L 0.0020 mg/L	0.00087U mg/L 0.0020U mg/L
RD-07_020714_01AF	Copper Nickel Zinc	0.00062 mg/L 0.00060 mg/L 0.013 mg/L	0.00062U mg/L 0.00060U mg/L 0.013U mg/L
RD-21_020714_01F	Copper Nickel	0.00074 mg/L 0.00099 mg/L	0.00074U mg/L 0.00099U mg/L
RD-65_020714_01F	Nickel	0.0020 mg/L	0.0020U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51958-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

Samples RD-18\_020714\_01 and RD-18\_020714\_36 and samples RD-18\_020714\_01F and RD-18\_020714\_36F were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01	RD-18_020714_36			
Antimony	0.00063	0.00040U	45 (≤35)	NQ	-
Arsenic	0.0015	0.0015	0 (≤35)	-	-
Barium	0.058	0.059	2 (≤35)	-	-
Nickel	0.0010	0.0010	0 (≤35)	-	-
Sodium	41	41	0 (≤35)	-	-
Vanadium	0.0035	0.0035	0 (≤35)	-	-
Zinc	0.24	0.24	0 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01F	RD-18_020714_36F			
Antimony	0.00060	0.00040U	40 (≤35)	NQ	-
Arsenic	0.0016	0.0016	0 (≤35)	-	-
Barium	0.058	0.056	4 (≤35)	-	-
Copper	0.00066	0.00056U	16 (≤35)	-	-
Nickel	0.0014	0.0010	33 (≤35)	-	-
Sodium	40	40	0 (≤35)	-	-
Vanadium	0.0034	0.0034	0 (≤35)	-	-
Zinc	0.25	0.24	4 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A RD-21_020714_01 RD-20_020714_01 RD-65_020714_01 RD-18_020714_01 RD-18_020714_36 RD-29_020714_01 RD-86_020714_01 EB_RD-07_020714F RD-07_020714_01AF RD-21_020714_01F RD-20_020714_01F RD-65_020714_01F RD-18_020714_01F RD-18_020714_36F RD-29_020714_01F RD-86_020714_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51958-1	RD-07_020714_01A	Copper Nickel	0.00093U mg/L 0.00057U mg/L	A	F
280-51958-1	RD-21_020714_01	Nickel	0.00061U mg/L	A	F
280-51958-1	RD-65_020714_01	Copper Nickel	0.00087U mg/L 0.0020U mg/L	A	F
280-51958-1	RD-07_020714_01AF	Copper Nickel Zinc	0.00062U mg/L 0.00060U mg/L 0.013U mg/L	A	F
280-51958-1	RD-21_020714_01F	Copper Nickel	0.00074U mg/L 0.00099U mg/L	A	F
280-51958-1	RD-65_020714_01F	Nickel	0.0020U mg/L	A	F

LDC #: 31419B4  
 SDG #: 280-51958-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 3-11-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: JVG

**METHOD:** Metals (EPA SW 846 Method ~~6020A/7000~~ 6020/6010B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-7-14</u>
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	<del>not utilized</del> <u>or</u>
XI.	ICP Serial Dilution	A✓	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	SW	D = 6+7    D = 15+16
XV.	Field Blanks	SW	EB = 1, 10    FB = FB-021214-19 (SDG: 280-52 081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

all water

1	EB_RD-07_020714	11	RD-07_020714_01AF	21	RD-18_020714_36MS	31	
2	RD-07_020714_01A	12	RD-21_020714_01F	22	RD-18_020714_36MSD	32	
3	RD-21_020714_01	13	RD-20_020714_01F	23	RD-65_020714_01FMS	33	
4	RD-20_020714_01	14	RD-65_020714_01F	24	RD-65_020714_01FMSD	34	
5	RD-65_020714_01	15	RD-18_020714_01F	25	RD-18_020714_36FMS	35	
6	RD-18_020714_01	16	RD-18_020714_36F	26	RD-18_020714_36FMSD	36	
7	RD-18_020714_36	17	RD-29_020714_01F	27		37	
8	RD-29_020714_01	18	RD-86_020714_01F	28		38	
9	RD-86_020714_01	19	RD-65_020714_01MS	29		39	PBW 1
10	EB_RD-07_020714F	20	RD-65_020714_01MSD	30		40	PBW 2

Notes: Samples appended with "F" were analyzed as dissolved





LDC #: 31419B4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 15,16,18 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: JTK

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Na		0.502		2.510										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 10-18 (ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Sn		0.000803		0.0040										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

VALIDATION FINDINGS WORKSHEET  
Field Blanks

METHOD: Trace Metals (EPA SW846 6010B/7000)

N/A Were field blanks identified in this SDG?

N/A Were target analytes detected in the field blanks?

Blank units: mg/L Associated sample units: mg/L

Sampling date: see below Soil factor applied NA

Field blank type: (circle one) Field Blank / Rinsate ~~Other~~ EB Associated Samples: 2,3,5 Qual: U (F)

Analyte	Blank ID	Blank ID	Sample Identification												
			Action Level	2.	3	5									
	FB_021214_19 sampled: 2/12/14	1 sampled: 2/7/14													
Sb		0.00044	0.0022												
Cr		0.00061	0.0030												
Cu		0.00078	0.0039	0.00093			0.00087								
Ni	0.00041		0.0020	0.00057	0.00061	0.0020									
Zn		0.0028	0.0140												

Blank units: mg/L Associated sample units: mg/L

Sampling date: see below Soil factor applied NA

Field blank type: (circle one) Field Blank / Rinsate ~~Other~~ EB Associated Samples: 11,12,14 Qual: U (F)

Analyte	Blank ID	Blank ID	Sample Identification												
			Action Level	11	12	14									
	FB_021214_19F sampled: 2/12/14	10 sampled: 2/7/14													
Sb		0.00045	0.0022												
Cu		0.00080	0.0040	0.00062	0.00074										
Ni	0.00048		0.0024	0.00060	0.00099	0.0020									
Zn		0.0026	0.0130	0.013											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	6	7		
Antimony	0.00063	0.00040U	45	No Qual.
Arsenic	0.0015	0.0015	0	
Barium	0.058	0.059	2	
Nickel	0.0010	0.0010	0	
Sodium	41	41	0	
Vanadium	0.0035	0.0035	0	
Zinc	0.24	0.24	0	

## Field Duplicates

Reviewer: MG

Method: Metals

2nd Reviewer: JV

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	15	16		
Antimony	0.00060	0.00040U	40	No Qual.
Arsenic	0.0016	0.0016	0	
Barium	0.058	0.056	4	
Copper	0.00066	0.00056U	16	
Nickel	0.0014	0.0010	33	
Sodium	40	40	0	
Vanadium	0.0034	0.0034	0	
Zinc	0.25	0.24	4	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** March 18, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51958-1

**Sample Identification**

EB\_RD-07\_020714  
RD-07\_020714\_01A  
RD-21\_020714\_01  
RD-20\_020714\_01  
RD-18\_020714\_01  
RD-18\_020714\_36  
RD-29\_020714\_01  
RD-86\_020714\_01

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate as Nitrogen.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB_RD-07_020714	Nitrate as N	109.25 hours	48 hours	J (all detects) R (all non-detects)	P
RD-07_020714_01A	Nitrate as N	108.75 hours	48 hours	J (all detects) R (all non-detects)	P
RD-21_020714_01 RD-20_020714_01	Nitrate as N	107.00 hours	48 hours	J (all detects) R (all non-detects)	P
RD-29_020714_01	Nitrate as N	110.25 hours	48 hours	J (all detects) R (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Sample EB\_RD-07\_020714 was identified as an equipment blank. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51958-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-18\_020714\_01 and RD-18\_020714\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01	RD-18_020714_36			
Fluoride	0.33	0.32	3 ( $\leq 35$ )	-	-



**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A RD-21_020714_01 RD-20_020714_01 RD-29_020714_01	Nitrate as N	J (all detects) R (all non-detects)	P	Technical holding time (H)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A RD-21_020714_01 RD-20_020714_01 RD-18_020714_01 RD-18_020714_36 RD-29_020714_01 RD-86_020714_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

LDC #: 31419B6  
 SDG #: 280-51958-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-11-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JG

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: <u>2-7-14</u>
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	<u>client specified</u>
VI.	Duplicates	N	<u>" "</u>
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	<u>D=5+6</u>
XI	Field blanks	ND	<u>EB=1 FB=FB-021214-19</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SDG: 280-52081-1

Validated Samples:  
all water

1	EB_RD-07_020714	11		21		31	
2	RD-07_020714_01A	12		22		32	
3	RD-21_020714_01	13		23		33	
4	RD-20_020714_01	14		24		34	
5	RD-18_020714_01	15		25		35	
6	RD-18_020714_36	16		26		36	
7	RD-29_020714_01	17		27		37	
8	RD-86_020714_01	18		28		38	
9		19		29		39	
10		20	<u>PBW</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



VALIDATION FINDINGS WORKSHEET  
Technical Holding Times

All circled dates have exceeded the technical holding time.  
 (Y) N N/A Were all samples preserved as applicable to each method?  
 (Y) N N/A Were all cooler temperatures within validation criteria?

Method:		300.0					
Parameters:		NO <sub>3</sub> -N					
Technical holding time:		48 hr					
Sample ID	Sampling date	Analysis date	Analysis date	Analysis date	Analysis date	Analysis date	Qualifier
1	08:00 2-7-14	21:09 2-11-14	(109.25 hr)				J/R/P (H)
2	08:45 2-7-14	21:26 2-11-14	(108.75 hr)				↓
3	10:43 2-7-14	21:43 2-11-14	(107.00 hr)				↓
4	11:04 2-7-14	22:00 2-11-14	(107.00 hr)				↓
7	08:38 2-7-14	22:54 2-11-14	(110.25 hr)				↓

Method: Inorganics (300.0)

2nd Reviewer: JN

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Fluoride	0.33	0.32	3	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51958-1

### Sample Identification

EB\_RD-07\_020714  
RD-07\_020714\_01A  
TB\_RD-07\_020714A  
RD-21\_020714\_01  
RD-20\_020714\_01  
RD-65\_020714\_01  
TB\_RD-65\_020714  
RD-29\_020714\_01  
TB\_RD-29\_020714  
RD-65\_020714\_01MS  
RD-65\_020714\_01MSD

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Samples TB\_RD-07\_020714A, TB\_RD-65\_020714, and TB\_RD-29\_020714 were identified as trip blanks. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample EB\_RD-07\_020714 was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	TPH as gasoline (C6-C12)	17 ug/L	RD-07_020714_01A RD-21_020714_01 RD-65_020714_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-07_020714_01A	TPH as gasoline (C6-C12)	12 ug/L	100U ug/L
RD-21_020714_01	TPH as gasoline (C6-C12)	15 ug/L	100U ug/L



Sample	Compound	Reported Concentration	Modified Final Concentration
RD-65_020714_01	TPH as gasoline (C6-C12)	17 ug/L	100U ug/L

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-07_020714_01A	a,a,a-Trifluorotoluene	147 (82-110)	All TCL compounds	J (all detects)	P
RD-21_020714_01	a,a,a-Trifluorotoluene	237 (82-110)	All TCL compounds	J (all detects)	P
RD-65_020714_01	a,a,a-Trifluorotoluene	185 (82-110)	All TCL compounds	J (all detects)	A

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51958-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **X. System Performance**

Raw data were not reviewed for this SDG.

## **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51958-1	RD-07_020714_01A RD-21_020714_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-51958-1	RD-65_020714_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A TB_RD-07_020714A RD-21_020714_01 RD-20_020714_01 RD-65_020714_01 TB_RD-65_020714 RD-29_020714_01 TB_RD-29_020714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51958-1	RD-07_020714_01A	TPH as gasoline (C6-C12)	100U ug/L	A	F
280-51958-1	RD-21_020714_01	TPH as gasoline (C6-C12)	100U ug/L	A	F
280-51958-1	RD-65_020714_01	TPH as gasoline (C6-C12)	100U ug/L	A	F

LDC #: 31419B7  
 SDG #: 280-51958-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 3/12/14  
 Page: 1 of 1  
 Reviewer: SW  
 2nd Reviewer: h

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/07/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	<u>LCS 1p</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	SW	<u>EB = 1</u> * <u>TB = 3, 7, 9</u> * <u>TB = FB-021214-1A</u> (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	EB_RD-07_020714	11	RD-65_020714_01MSD	21	<u>MB 280-212335/14</u>	31	
2	RD-07_020714_01A	12		22		32	
3	TB_RD-07_020714A	13		23		33	
4	RD-21_020714_01	14		24		34	
5	RD-20_020714_01	15		25		35	
6	RD-65_020714_01	16		26		36	
7	TB_RD-65_020714	17		27		37	
8	RD-29_020714_01	18		28		38	
9	TB_RD-29_020714	19		29		39	
10	RD-65_020714_01MS	20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 31419 B7

# VALIDATION FINDINGS WORKSHEET

## Field Blanks

Page: 1 of 1  
Reviewer: *[Signature]*  
2nd Reviewer: *[Signature]*

METHOD: GC HPLC

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/07/14

Field blank type: (circle one) Field Blank / Trip Blank / Atmospheric Blank / Ambient Blank  
Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other:

Associated Samples: 2, 4, 6 (F)

Compound	EB Blank ID	Blank ID	Sample Identification							
	1		2	4	6					
C <sub>6</sub> -C <sub>12</sub>	17		12/1004	15/1004	17/1004					
CRQL										

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Trip Blank / Atmospheric Blank / Ambient Blank  
Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other:

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Blank ID	Sample Identification							
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

*(sure resolution w/ target analyte; subtracted from TA)*



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51958-1

**Sample Identification**

EB\_RD-07\_020714  
RD-07\_020714\_01A  
RD-21\_020714\_01  
RD-20\_020714\_01  
RD-65\_020714\_01  
RD-29\_020714\_01  
RD-65\_020714\_01MS  
RD-65\_020714\_01MSD

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample EB\_RD-07\_020714 was identified as an equipment blank. No total petroleum hydrocarbons as extractable contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-65_020714_01MS/MSD (RD-65_020714_01)	TPH as extractables (C15-C20) TPH as extractables (C21-C30)	- -	123 (69-115) 122 (75-115)	- -	J (all detects) J (all detects)	A

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

### IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51958-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51958-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51958-1	RD-65_020714_01	TPH as extractables (C15-C20) TPH as extractables (C21-C30)	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A RD-21_020714_01 RD-20_020714_01 RD-65_020714_01 RD-29_020714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

LDC #: 31419B8  
 SDG #: 280-51958-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: SVB  
 2nd Reviewer: A

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/07/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	<u>LCS 1p</u>
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	<u>EB = 1    FB = FB-021214-19 (280-52081-1)</u>

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples:

Water

1	EB_RD-07_020714	11	<u>MB 280-212706/1-B</u>	21		31	
2	RD-07_020714_01A	12		22		32	
3	RD-21_020714_01	13		23		33	
4	RD-20_020714_01	14		24		34	
5	RD-65_020714_01	15		25		35	
6	RD-29_020714_01	16		26		36	
7	RD-65_020714_01MS	17		27		37	
8	RD-65_020714_01MSD	18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 7, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51958-1

**Sample Identification**

EB\_RD-07\_020714  
RD-07\_020714\_01A  
RD-21\_020714\_01  
RD-65\_020714\_01  
RD-65\_020714\_01MS  
RD-65\_020714\_01MSD

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. LC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

Sample EB\_RD-07\_020714 was identified as an equipment blank. No perchlorate was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No perchlorate was found.

## VI. Surrogate Spikes

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-65_020714_01MS/MSD (RD-65_020714_01)	Perchlorate	142 (80-120)	76 (80-120)	61 ( $\leq 15$ )	J (all detects) UJ (all non-detects)	A



### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D 280-212894/15,16 (All samples in SDG 280-51958-1)	Perchlorate	-	405 (80-120)	128 ( $\leq 15$ )	J (all detects) UJ (all non-detects)	P

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51958-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. System Performance

Raw data were not reviewed for this SDG.

### XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

### XV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51958-1	RD-65_020714_01	Perchlorate	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)(RPD) (Q, E)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A RD-21_020714_01 RD-65_020714_01	Perchlorate	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R)(RPD) (L)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A RD-21_020714_01 RD-65_020714_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/07/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	NS + rejid.
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS 10
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	EB = 1 FB = FB_021214_19

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

(280-52081-1)

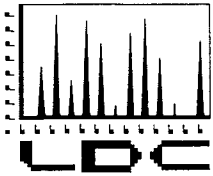
Validated Samples:

Water

1	EB RD-07_020714	11	MB 280-212894 / 14	21		31	
2	RD-07_020714_01A	12		22		32	
3	RD-21_020714_01	13		23		33	
4	RD-65_020714_01	14		24		34	
5	RD-65_020714_01MS	15		25		35	
6	RD-65_020714_01MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	







## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 26, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

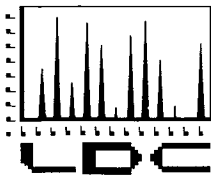
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31419:

<u>SDG #</u>	<u>Fraction</u>
280-51905-1, 280-51958-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-
280-51987-1, 280-52029-1	Trichloropropane, Metals, Wet Chemistry, Perchlorate,
280-52215-1, 280-51988-1	Total Petroleum Hydrocarbons as Gasoline, Total
280-52090-1	Petroleum Hydrocarbons as Extractables, Chlorinated Pesticides, Polychlorinated Biphenyls, Formaldehyde, Perchlorate, Dioxins/Dibenofurans, N- Nitrosodimethylamine

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

PZ-103\_021014\_01  
TB\_PZ-103\_021014  
RD-27\_021014\_01  
RD-109\_021014\_01A\*\*  
TB\_RD-109\_021014A  
RD-110\_021014\_01A\*\*  
TB\_RD-110\_021014A  
PZ-104\_021014\_01  
RD-17\_021014\_01  
OS-09R\_021014\_01  
TB\_OS-09R\_021014  
RD-103(P07)\_021014\_01  
RD-110\_021014\_01AMS  
RD-110\_021014\_01AMSD

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 14 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
2/6/14	Acrolein Acrylonitrile	0.0213 ( $\geq 0.05$ ) 0.0450 ( $\geq 0.05$ )	RD-110_021014_01A** TB_RD-110_021014A RD-110_021014_01AMS RD-110_021014_01AMSD MB 280-213006/5	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
1/13/14	tert-Butyl alcohol Tetrahydrofuran	0.0132 ( $\geq 0.05$ ) 0.0370 ( $\geq 0.05$ )	RD-110_021014_01A** TB_RD-110_021014A RD-110_021014_01AMS RD-110_021014_01AMSD MB 280-213006/5	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/14/14 (R2458)	Chlorobenzene cis-1,3-Dichloropropene 1,4-Dichlorobenzene 1,2-Dibromo-3-chloropropane	20.2 23.1 21.8 26.2	RD-110_021014_01A** TB_RD-110_021014A RD-110_021014_01AMS RD-110_021014_01AMSD MB 280-213005/5	J (all detects) UJ (all non-detects)	A
2/14/14 (RR9662)	Acrolein Acrylonitrile	21.4 23.2	RD-110_021014_01A** TB_RD-110_021014A RD-110_021014_01AMS RD-110_021014_01AMSD MB 280-213006/5	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
1/13/14	Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane	24.4 27.6 27.1 25.1 24.3	RD-109_021014_01A** RD-110_021014_01A** TB_RD-110_021014A RD-110_021014_01AMS RD-110_021014_01AMSD MB 280-213005/5	J (all detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within method and validation criteria with the following exceptions:

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
2/14/14	tert-Butyl alcohol Tetrahydrofuran	0.0111 (≥0.05) 0.0347 (≥0.05)	RD-110_021014_01A** TB_RD-110_021014A RD-110_021014_01AMS RD-110_021014_01AMSD MB 280-213005/5	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
2/14/14	Acrolein Acrylonitrile	0.0168 (≥0.05) 0.0346 (≥0.05)	RD-110_021014_01A** TB_RD-110_021014A RD-110_021014_01AMS RD-110_021014_01AMSD MB 280-213006/5	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_PZ-103\_021014, TB\_RD-109\_021014A, TB\_RD-110\_021014A, and TB\_OS-09R\_021014 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_OS-09R_021014	2/10/14	Acetone	2.2 ug/L	OS-09R_021014_01 RD-103(P07)_021014_01

Samples EB\_RD-07\_020714 (from SDG 280-51958-1) and EB\_RD-100\_012414 (from SDG 280-51492-1) were identified as equipment blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	PZ-103_021014_01 RD-109_021014_01A** RD-110_021014_01A** PZ-104_021014_01
EB_RD-100_012414	1/24/14	Chloroform	0.51 ug/L	RD-109_021014_01A** RD-110_021014_01A**

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	PZ-103_021014_01 RD-109_021014_01A** RD-110_021014_01A** PZ-104_021014_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PZ-103_021014_01	Chloroform	0.23 ug/L	1.0U ug/L
RD-110_021014_01A**	Chloroform	1.8 ug/L	10U ug/L
PZ-104_021014_01	Acetone	2.5 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-110_021014_01AMS/MSD (RD-110_021014_01A**)	1,1-Dichloroethene	190 (71-136)	177 (71-136)	-	J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS 280-213006/4	sec-Dichloropropane	136 (67-135)	RD-110_021014_01A** TB_RD-110_021014A MB 280-213006/5	J (all detects)	P

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a Level IV review was performed. Internal standards data were not evaluated for the samples reviewed by Level V criteria.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XII. Compound Quantitation**

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	RD-110_021014_01A** TB_RD-110_021014A	Acrolein Acrylonitrile tert-Butyl alcohol Tetrahydrofuran	J (all detects) UJ (all non-detects)	A	Initial calibration (RRF) (R)
280-51987-1	RD-110_021014_01A** TB_RD-110_021014A	Chlorobenzene cis-1,3-Dichloropropene 1,4-Dichlorobenzene 1,2-Dibromo-3-chloropropane Acrolein Acrylonitrile	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
280-51987-1	RD-109_021014_01A** RD-110_021014_01A** TB_RD-110_021014A	Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D) (C)
280-51987-1	RD-110_021014_01A** TB_RD-110_021014A	tert-Butyl alcohol Tetrahydrofuran Acrolein Acrylonitrile	J (all detects) UJ (all non-detects)	A	Continuing calibration (RRF) (R)
280-51987-1	RD-110_021014_01A**	1,1-Dichloroethene	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51987-1	RD-110_021014_01A** TB_RD-110_021014A	sec-Dichloropropane	J (all detects)	P	Laboratory control samples (%R) (L)
280-51987-1	PZ-103_021014_01 TB_PZ-103_021014 RD-27_021014_01 RD-109_021014_01A** TB_RD-109_021014A RD-110_021014_01A** TB_RD-110_021014A PZ-104_021014_01 RD-17_021014_01 OS-09R_021014_01 TB_OS-09R_021014 RD-103(P07)_021014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG



**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51987-1	PZ-103_021014_01	Chloroform	1.0U ug/L	A	F
280-51987-1	RD-110_021014_01A**	Chloroform	10U ug/L	A	F
280-51987-1	PZ-104_021014_01	Acetone	10U ug/L	A	F

LDC #: 31419C1a  
 SDG #: 280-51987-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV/V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JVC  
 2nd Reviewer: N

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	2 RSD ≤ 30/15.2 r <sup>2</sup>
IV.	Continuing calibration/ICV	SW	CCW/W ≤ 20.2
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS <del>fy</del>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2, 5, 7, 11 FB = FB-021214-19 (280-5208) EB = EB-RD-07-020714 (280-51958) ↓ = EB-RD-100-012414 (280-51492)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

~~xx~~ level IV Water

1	PZ-103_021014_01	11	TB_OS-09R_021014	21	MB 280-213005/5	31
2	TB_PZ-103_021014	12	RD-103(PZ07)_021014_01	22	↓ -213006/5	32
3	RD-27_021014_01	13	RD-110_021014_01AMS	23		33
4	RD-109_021014_01A **	14	RD-110_021014_01AMSD	24		34
5	TB_RD-109_021014A	15		25		35
6	RD-110_021014_01A **	16		26		36
7	TB_RD-110_021014A	17		27		37
8	PZ-104_021014_01	18		28		38
9	RD-17_021014_01	19		29		39
10	OS-09R_021014_01	20		30		40

VOCS = All others  
 Std. W = 6, 7

**Method:** Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?	/			
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?	/			
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) > 0.05?		/		
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?		/		
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	/			
Was a MS/MSD analyzed every 20 samples of each matrix?	/			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		/		
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		/		
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/	/		
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			/	
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
XVII. Field blanks				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.	/			

## TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP. <i>Tetrahydrofuran</i>
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ. <i>sec-Dichloropropane</i>
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

\* = System performance check compounds (SPCC) for RRF ; \*\* = Calibration check compounds (CCC) for %RSD.

### VALIDATION FINDINGS WORKSHEET Initial Calibration

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
- N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
- N N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?  $r^2 \geq 0.99$
- N N/A Did the initial calibration meet the acceptance criteria?
- Y (N) N/A Were all %RSDs and RRFs within the validation criteria of  $\leq 30/15$  %RSD and  $\geq 0.05$  RRF?

#	Date	Standard ID	Compound	Finding %RSD (Limit: $\leq 30/15$ )	Finding RRF (Limit: $\geq 0.05$ )	Associated Samples	Qualifications
	2/06/14	1CAL-R2	FFFF GGGG		0.0213 0.0450	6, 7, 13, 14 MB280-2/3006/5	J/V/A (R)
	1/13/14	1CAL-R1	ZZZ PPPP		0.0192 0.0370		

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
- Y N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?
- Y N N/A Were all %D and RRFs within the validation criteria of  $\leq 20\%$  %D and  $\geq 0.05$  RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: $\leq 20.0\%$ )	Finding RRF (Limit: $\geq 0.05$ )	Associated Samples	Qualifications
	1/12/14	R1550 (1CV)	A	24.4		4, 6, 7, 13, 14, MB 280-213005/S	J/US/A (C)
			C	27.6			
			B	27.1			
			D	25.1			
			KK	24.3			
	2/14/14	R2458 (1CV)	DD	20.2		6, 7, 13, 14, MB 280-213005/S	
			R	23.1			
			HHH	21.8			
			MM	26.2			
			ZZZ		0.0111		(R)
			PPP		0.0347		(R)
	2/14/14	RR 9662	FFF	21.4		6, 7, 13, 14, MB 280-213006/S	(C)
			GGG	23.2			(R)
			FFF		0.0168		(R)
			GGG		0.0346		(R)

LDC #: 31419 C1a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

N N/A Were field blanks identified in this SDG?  
 N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/2/14; 2/6/14; 1/24/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: EB Associated Samples: 1, 4, 6, 8 (F)

Compound	FB (2/2) Blank ID	EB (2/6)	EB (1/24)	Sample Identification (EB_RD-100 = 4, 6 only)						
	FB_021214-19	EB_RD-07_020714	EB_RD-100_012414	1	6	8				
K	0.50		0.51	0.23/1.0U	1.8/10U					
F		2.0				2.5/10U				

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/10/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 10, 12 (M)

Compound	Blank ID	Sample Identification								
	11									
F	2.2									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".







**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\% \text{RSD} = 100 * (S/X)$$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound

S = Standard deviation of the RRFs

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	1/13/2014	Trichloroethene (IS1)	0.5400	0.5400	0.5209	0.5209	5.3	5.3
			Tetrachloroethene (IS2)	2.1337	2.1337	2.0391	2.0391	6.6	6.6
	GC VMS R1		1,1,2,2-TCA (IS3)	0.7668	0.7668	0.7366	0.7366	9.5	9.5

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

Where:

ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound

Cx = Concentration of compound,  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
3	r2457 GC VMS R1	2/14/2014	Trichloroethene (IS1)	0.5209	0.5232	0.5232	0.4	0.4
			Tetrachloroethene (IS2)	2.0391	1.8076	1.8076	11.3	11.3
			1,1,2,2-TCA (IS3)	0.7366	0.6123	0.6123	16.9	16.9

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID: # 4 (1x)

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	10.0	9.67	97	97	0
1,2-Dichloroethane-d4		8.95	89	89	
Toluene-d8		10.6	106	106	
Bromofluorobenzene		9.83	98	98	

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 31 F15C1a

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: K

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SSC - SC)/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

SC = Sample concentration

RPD = |MSC - MSC| \* 2 / (MSC + MSDC)

MSC = Matrix spike concentration

MSDC = Matrix spike duplicate concentration

MS/MSD sample: 13/14

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	50.0	50.0	0	94.9	88.5	190	190	177	177	7	7
Trichloroethene			1400	1240	1230	-349	-0	-378	0	1	1
Benzene			0	47.7	41.4	95	95	83	83	14	14
Toluene				51.7	45.4	103	103	91	91	13	13
Chlorobenzene				49.8	42.2	98	98	84	84	15	15

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31419C19

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * SSC/SA$

Where: SSC = Spiked sample concentration  
 SA = Spike added

RPD =  $| LCSC - LCSDC | * 2 / (LCSC + LCSDC)$

LCSC = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280 - 213005/4

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.00	NA	4.50	NA	96	96				
Trichloroethene	↓	↓	4.94	↓	99	99				
Benzene	↓	↓	4.79	↓	95	95				
Toluene	↓	↓	5.64	↓	101	101				
Chlorobenzene	↓	↓	4.09	↓	82	82				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 10, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level IV & V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51987-1

### Sample Identification

RS-37\_021014\_01A\*\*

RS-38\_021014\_01\*\*

RD-109\_021014\_01A\*\*

RD-110\_021014\_01A\*\*

RD-31\_021014\_01

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-212929/1-A	2/13/14	Phenanthrene Fluoranthene Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.0107 ug/L 0.00627 ug/L 0.157 ug/L 0.0326 ug/L 0.177 ug/L	RS-37_021014_01A** RD-109_021014_01A** RD-110_021014_01A** RD-31_021014_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
RS-37_021014_01A**	Di-n-butylphthalate Diethylphthalate	0.017 ug/L 0.43 ug/L	9.5U ug/L 9.5U ug/L
RD-109_021014_01A**	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.50 ug/L 0.014 ug/L 0.094 ug/L	9.6U ug/L 9.6U ug/L 9.6U ug/L
RD-110_021014_01A**	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.87 ug/L 0.023 ug/L 0.073 ug/L	9.5U ug/L 9.5U ug/L 9.5U ug/L
RD-31_021014_01	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	0.15 ug/L 0.25 ug/L 0.14 ug/L	9.7U ug/L 9.7U ug/L 9.7U ug/L

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a Level IV review was performed. Internal standards data were not evaluated for the samples reviewed by Level V criteria.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## XII. Compound Quantitation

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	RS-37_021014_01A** RS-38_021014_01** RD-109_021014_01A** RD-110_021014_01A** RD-31_021014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P	Code
280-51987-1	RS-37_021014_01A**	Di-n-butylphthalate Diethylphthalate	9.5U ug/L 9.5U ug/L	A	B
280-51987-1	RD-109_021014_01A**	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	9.6U ug/L 9.6U ug/L 9.6U ug/L	A	B
280-51987-1	RD-110_021014_01A**	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	9.5U ug/L 9.5U ug/L 9.5U ug/L	A	B
280-51987-1	RD-31_021014_01	Bis(2-ethylhexyl)phthalate Di-n-butylphthalate Diethylphthalate	9.7U ug/L 9.7U ug/L 9.7U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V/IV

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C-SIM )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	2 RSD ≤ 30/15 %
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20 %
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	FB ← FB

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 \*\* Level IV Water

1	RS-37_021014_01A	**	11	MB 280-219929/1-A	21	31
2	RS-38_021014_01	**	12		22	32
3	RD-109_021014_01A	**	13		23	33
4	RD-110_021014_01A	**	14		24	34
5	RD-31_021014_01		15		25	35
6			16		26	36
7			17		27	37
8			18		28	38
9			19		29	39
10			20		30	40

(PAH + Phthalates) = 1, 3  
 (PAH only) = 2

(ho r<sup>2</sup>)

Method: PAH (EPA SW 846 Method 8270C-SIM)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		<input checked="" type="checkbox"/>		
Were the performance evaluation (PE) samples within the acceptance limits?			<input checked="" type="checkbox"/>	
<b>X. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	<input checked="" type="checkbox"/>			
Were retention times within + 30 seconds from the associated calibration standard?	<input checked="" type="checkbox"/>			
<b>XI. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	<input checked="" type="checkbox"/>			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	<input checked="" type="checkbox"/>			
Were chromatogram peaks verified and accounted for?	<input checked="" type="checkbox"/>			
<b>XII. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	<input checked="" type="checkbox"/>			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			<input checked="" type="checkbox"/>	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			<input checked="" type="checkbox"/>	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			<input checked="" type="checkbox"/>	
<b>XIV. System performance</b>				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		<input checked="" type="checkbox"/>		
Target compounds were detected in the field duplicates.			<input checked="" type="checkbox"/>	
<b>XVII. Field blanks</b>				
Field blanks were identified in this SDG.		<input checked="" type="checkbox"/>		
Target compounds were detected in the field blanks.			<input checked="" type="checkbox"/>	

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

**VALIDATION FINDINGS WORKSHEET**

**Blanks**

**METHOD:** GC/MS PAH (EPA SW 846 Method 8270C-SIM)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Was a method blank analyzed for each matrix?
- Y N N/A Was a method blank analyzed for each concentration preparation level?
- Y N N/A Was a method blank associated with every sample?
- Y N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 2/12/14 Blank analysis date: 2/17/14

Conc. units: ug/L

Associated Samples: AH 1, 3-5

(B)

Compound	Blank ID									
	<u>MB 280-212929</u>	<u>1-A</u>	<u>1</u>	<u>3</u>	<u>4</u>	<u>5</u>				
<u>UU</u>	<u>0.0107</u>									
<u>YY</u>	<u>0.00627</u>									
<u>EEE</u>	<u>0.157</u>		<u>0.50/9.64</u>	<u>0.87/9.54</u>	<u>0.15/9.74</u>					
<u>XX</u>	<u>0.0326</u>	<u>0.017/9.54</u>	<u>0.014/</u>	<u>0.023/</u>	<u>0.25/</u>					
<u>LL</u>	<u>0.177</u>	<u>0.43/</u>	<u>0.094/</u>	<u>0.073/</u>	<u>0.14/</u>					

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS SVOA (EPA SW 846 Method 8270C-SIM)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound,

S= Standard deviation of the RRFs,

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (600 std)	Recalculated RRF (600 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL MSS01	2/7/14	Naphthalene (ANT)	1.7589	1.7589	1.7178	1.7178	5.5	5.5
			Bis(2-eh)phthalate (PHN)	0.8846	0.8846	0.8769	0.8769	6.0	6.0
			Chrysene (CRY)	1.2064	1.2064	1.2785	1.2785	15.0	15.0

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

METHOD: GC/MS SVOA (EPA SW 846 Method 8270C-SIM)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

Where:

ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound

Cx = Concentration of compound  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound	Ave RRF	Reported RRF	Recalculated RRF	Reported % D	Recalculated %D
1	F4293	2/17/2014	Naphthalene (ANT)	1.7178	1.7235	1.7235	0.3	0.3
			Bis(2-eh)phthalate (PHN)	0.8769	0.8318	0.8318	5.1	5.1
			Chrysene (CRY)	1.2785	1.2037	1.2037	5.8	5.8
2	F4324	2/18/2014	Naphthalene (ANT)	1.7178	1.7320	1.7320	0.8	0.8
			Bis(2-eh)phthalate (PHN)	0.8769	0.8606	0.8606	1.9	1.9
			Chrysene (CRY)	1.2785	1.2089	1.2089	5.4	5.4

LDC #: 31419 C2b

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: [Signature]

**METHOD:** GC/MS PAH (EPA SW 846 Method 8270C-SIM)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	500	411.7	82	82	0
2-Fluorobiphenyl	↓	426.7	87	87	↓
Terphenyl-d14	↓	509.2	102	102	↓

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

LDC #: 3/419 C26

**VALIDATION FINDINGS WORKSHEET**

**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Reviewer: JVG

2nd Reviewer: [Signature]

**METHOD:** GC/MS PAH (EPA SW 846 Method 8270C-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SC/SA

Where: SSC = Spike concentration  
SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: LCS 280 - 2/29/29 / 2-A

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Acenaphthene	0.900	<del>0.900</del>	0.732	0.719	81	81	80	80	2	2
Pyrene	↓	↓	0.749	0.724	83	83	80	80	3	3

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 10, 2014

**LDC Report Date:** March 18, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

RD-109\_021014\_01A

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## III. Initial Calibration

Initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

Retention time windows were evaluated and considered technically acceptable.

## IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
2/19/14	280-213650/22	CLP1	Heptachlor epoxide Endosulfan II	20.1 20.4	All samples in SDG 280-51987-1	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
2/15/14	280-213120/31	CLP2	Toxaphene	29.56	All samples in SDG 280-51987-1	J (all detects) UJ (all non-detects)	A

Retention times (RT) of all compounds in the calibration standards were within QC limits.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No chlorinated pesticide contaminants were found.

Sample FB\_021214-19 (from SDG 280-52081-1) was identified as a field blank. No chlorinated pesticide contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

## **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XII. Target Compound Identification**

All target compound identifications were within validation criteria.

### **XIII. Compound Quantitation**

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

### **XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	RD-109_021014_01A	Heptachlor epoxide Endosulfan II	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Continuing calibration (CCV %D) (C)
280-51987-1	RD-109_021014_01A	Toxaphene	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D) (C)
280-51987-1	RD-109_021014_01A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

LDC #: 31419C3a  
 SDG #: 280-51987-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 3/1/14  
 Page: 1 of 1  
 Reviewer: *JM*  
 2nd Reviewer: *R*

**METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	r2
IV.	Continuing calibration/ICV	SW	≤ 20 (ccv/icv)
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	C.S.
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	A	
XIII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	EB=EB-RD-100-012414(280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank  
 FB = FB-021214-19(28052081-1)

Validated Samples: *Water*

1	RD-109_021014_01A	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB 280-213359	30		40	

**Method:** Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/ECD Instrument performance check</b>				
Was the instrument performance found to be acceptable?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) $\leq$ 20%?			/	
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	/			
Did the initial calibration meet the curve fit acceptance criteria?	/			
Were the RT windows properly established?	/			
Were the required standard concentrations analyzed in the initial calibration?	/			
<b>IV. Continuing calibration</b>				
Were Evaluation mix standards analyzed prior to the initial calibration and sample analysis?	/			
Were endrin and 4,4'-DDT breakdowns $\leq$ 15%.0 for individual breakdown in the Evaluation mix standards?	/			
Was a continuing calibration analyzed daily?	/			
Were all percent differences (%D) $\leq$ 20%.0?	X	⊗		ICV
Were all the retention times within the acceptance windows?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?			/	
Were extract cleanup blanks analyzed with every batch requiring clean-up?			/	
Was there contamination in the method blanks or clean-up blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	/			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			/	



Validation Area	Yes	No	NA	Findings/Comments
Was a MS/MSD analyzed every 20 samples of each matrix?			/	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?			/	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.			/	
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

## VALIDATION FINDINGS WORKSHEET

**METHOD:** Pesticide/PCBs (EPA SW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG. Chlordane
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH. Chlordane (Technical)
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II. oxy-Chlordane
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ. Mirex
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. 2,4'-DDD	KK.
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. 2,4'-DDE	LL.
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE. 2,4'-DDT	MM.
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF. Hexachlorobenzene	NN.

Notes: \_\_\_\_\_

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\_\_\_\_\_



LDC#: 31419C3a

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 2  
 Reviewer: gm  
 2nd Reviewer: rl

Method: EPA SW 846 Method 8081A

Calibration Date	GCMS	Compound	Standard	(X) Response ratio	(Y) Concentration ratio
2/14/2014	SGC_P1 (CLP I)	gamma-BHC	1	99370727	100
			2	76249537	75
			3	53763593	50
			4	30027316	25
			5	11233289	10
			6	4953814	4

Regression Output	Calculated	Reported
Constant	2840510.940	800742.042
Std Err of Y Est		
R Squared	0.9974	0.9950
Degrees of Freedom		
X Coefficient(s)	979375.797	1050254.41
Std Err of Coef.		
Correlation Coefficient	0.9986852	
Coefficient of Determination (r <sup>2</sup> )	0.9973721	

*weighed*

LDC#: 31419C3a

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 2 of 2  
 Reviewer: TR  
 2nd Reviewer: sk

Method: EPA SW 846 Method 8081A

Calibration Date	GCMS	Compound	Standard	(X) Response ratio	(Y) Concentration ratio
2/14/2014	SGC_P1 (CLP 2)	gamma-BHC	1	79345471	100
			2	61930954	75
			3	44350740	50
			4	25436224	25
			5	9799812	10
			6	4446860	4

Regression Output	Calculated	Reported
Constant	3353334.551	1098301.790
Std Err of Y Est		
R Squared	0.9953	0.9920
Degrees of Freedom		
X Coefficient(s)	777235.052	856571.66
Std Err of Coef.		
Correlation Coefficient	0.9976686	
Coefficient of Determination (r <sup>2</sup> )	0.9953427	

*weighted*

### VALIDATION FINDINGS WORKSHEET Continuing Calibration Results Verification

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference (%D) =  $100 * (\text{ave. CF} - \text{CF}) / \text{ave. CF}$   
CF=A/C

Where: ave. CF = initial calibration average CF  
CF = continuing calibration CF  
A = Area of compound  
C = Concentration of compound

Standard ID	Calibration Date/Time	Compound	Average CF/ CCV <del>Conc</del>	Reported	Recalculated	Reported	Recalculated
				CF/ <del>Conc</del> CCV	CF/ <del>Conc</del> CCV	%D	%D
CCV 280- 213650/22	2-19-14	gamma-BHC (CLP1)	50.0	59.7	59.7	19.3	19.3
		(CLP2)	50.0	53.7	53.7	7.4	7.4

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene	CLP1	20.0	17.6	88	88	∅
Decachlorobiphenyl	CLP1	20.0	17.5	87	87	∅
Tetrachloro-m-xylene	CLP2	20.0	15.7	NR	78	NC
Decachlorobiphenyl	CLP2	20.0	16.2	NR	81	NC

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

Notes: \_\_\_\_\_

LDC #: 3419C3a

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SSC - SC) / SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

SC = Concentration

RPD = | LCS - LCSD | \* 2 / (LCS + LCSD)

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS/LCSD 280-213359/2#3

Compound	Spike Added (mg/L)		Spiked Sample Concentration (mg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC	0.250	0.250	0.255	0.274	102	102	109	109	7	7
4,4'-DDT	0.250	0.250	0.266	0.266	106	106	106	106	∅	∅
Aroclor 1260										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 10, 2014

**LDC Report Date:** March 18, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

RS-38\_021014\_01

RD-109\_021014\_01A

RD-110\_021014\_01A

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

## **III. Initial Calibration**

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No polychlorinated biphenyl contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

## XI. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

## XII. Target Compound Identification

All target compound identifications were within validation criteria.

## XIII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	RS-38_021014_01 RD-109_021014_01A RD-110_021014_01A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

LDC #: 31419C3b

## VALIDATION COMPLETENESS WORKSHEET

Date: 3-11-14

SDG #: 280-51987-1

Level IV

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: Ym2nd Reviewer: JG**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	A	≤ 20
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	C.S
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	A	
XIII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	FB = FB-021214-19(280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: Water

1	RS-38_021014_01	11		21		31	
2	RD-109_021014_01A	12		22		32	
3	RD-110_021014_01A	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	MB 280-213042	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Method:** Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/ECD Instrument performance check</b>				
Was the instrument performance found to be acceptable?			/	
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) $\leq$ 20%?			/	
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	/			
Did the initial calibration meet the curve fit acceptance criteria?	/			
Were the RT windows properly established?	/			
Were the required standard concentrations analyzed in the initial calibration?	/			
<b>IV. Continuing calibration</b>				
Were Evaluation mix standards analyzed prior to the initial calibration and sample analysis?			/	
Were endrin and 4,4'-DDT breakdowns $\leq$ 15%.0 for individual breakdown in the Evaluation mix standards?			/	
Was a continuing calibration analyzed daily?	/			
Were all percent differences (%D) $\leq$ 20%.0?	/			
Were all the retention times within the acceptance windows?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?			/	
Were extract cleanup blanks analyzed with every batch requiring clean-up?			/	
Was there contamination in the method blanks or clean-up blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	/			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			/	



Validation Area	Yes	No	NA	Findings/Comments
Was a MS/MSD analyzed every 20 samples of each matrix?			/	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?			/	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.			/	
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

## VALIDATION FINDINGS WORKSHEET

**METHOD:** Pesticide/PCBs (EPA SW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG. Chlordane
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH. Chlordane (Technical)
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II. oxy-Chlordane
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ. Mirex
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. 2,4'-DDD	KK.
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. 2,4'-DDE	LL.
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE. 2,4'-DDT	MM.
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF. Hexachlorobenzene	NN.

Notes: \_\_\_\_\_

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LDC#: 31419C3b

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 2  
 Reviewer: JR  
 2nd Reviewer: JL

Method: EPA SW 846 Method 8082

Calibration Date	GCMS	Compound	Standard	(X) Response ratio	(Y) Concentration ratio
1/23/2014	SGC_W (CLP I)	PCB-1206 Peak 5 1260	1	16176	25
			2	31223	50
			3	56819	100
			4	132431	250
			5	252299	500
			6	381962	750
			7	470987	1000

Regression Output	Calculated	Reported
Constant	10063.553	5711.442
Std Err of Y Est		
R Squared	0.9974	0.9980
Degrees of Freedom		
X Coefficient(s)	475.309	486.70
Std Err of Coef.		
Correlation Coefficient	0.9986765	
Coefficient of Determination (r^2)	0.9973548	

LDC#: 31419C3b

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 2 of 2  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

Method: EPA SW 846 Method 8082

Calibration Date	GCMS	Compound	Standard	(X) Response ratio	(Y) Concentration ratio
1/23/2014	SGC_W (CLP 2)	PCB-1206 Peak 5 1260	1	7158	25
			2	14064	50
			3	26990	100
			4	65614	250
			5	119912	500
			6	196049	750
			7	221693	1000

**Regression Output**

	<i>Calculated</i>	<i>Reported</i>
Constant	4930.065	1967.229
Std Err of Y Est		
R Squared	0.9882	0.9930
Degrees of Freedom		
X Coefficient(s)	230.643	238.40
Std Err of Coef.		
Correlation Coefficient	0.9941	
Coefficient of Determination (r^2)	0.9882	

LDC #: 31419C3b

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

Page: 1 of 1  
 Reviewer: SM  
 2nd Reviewer: Ng

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference (%D) = 100 \* (ave. CF - CF)/ave. CF  
 CF=A/C

Where: ave. CF = initial calibration average CF  
 CF = continuing calibration CF  
 A = Area of compound  
 C = Concentration of compound

Standard ID	Calibration Date/Time	Compound	Average CF/ CCV <u>Conc</u>	Reported	Recalculated	Reported	Recalculated
				CF/ <u>Conc</u> CCV	CF/ <u>Conc</u> CCV	%D	%D
<u>CCV 280</u>	<u>2-18-14</u> <u>12:00</u>	<u>PCB-1260 Peak 5 (CLP1)</u>	<u>500</u>	<u>512</u>	<u>512</u>	<u>2.3</u>	<u>2.3</u>
<u>213401/11</u>		<u>(CLP2)</u>	<u>500</u>	<u>572</u>	<u>572</u>	<u>14.5</u>	<u>14.5</u>

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene	CLP1	20.0	18.3	91	91	∅
Decachlorobiphenyl	CLP1	↓	14.5	72	72	∅
Tetrachloro-m-xylene	CLP2		18.7	NR	93	NC
Decachlorobiphenyl	CLP2		15.2	NR	76	NC

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Tetrachloro-m-xylene						
Decachlorobiphenyl						

Notes: \_\_\_\_\_  
\_\_\_\_\_

LDC #: 31419C36

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SSC-SC)/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

SC = Concentration

RPD = |LCS - LCSD| \* 2 / (LCS + LCSD)

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS/LCSD 280-213042/425

Compound	Spike Added (ng/L)		Spiked Sample Concentration (ng/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC										
4,4'-DDT										
Aroclor 1260	2.00	2.00	2.00	2.03	100	99.9	101	101	1	1

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 10, 2014

**LDC Report Date:** March 21, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level IV & V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51987-1

### Sample Identification

PZ-103_021014_01	RD-31_021014_01F
EB_RS-37_021014	RD-103(P07)_021014_01F
RS-37_021014_01A**	PZ-103_021014_01MS
RS-38_021014_01**	PZ-103_021014_01MSD
RD-27_021014_01	RS-37_021014_01AMS
RD-109_021014_01A**	RS-37_021014_01AMSD
RD-110_021014_01A**	RD-103(P07)_021014_01MS
PZ-104_021014_01	RD-103(P07)_021014_01MSD
RD-17_021014_01	RD-110_021014_01AFMS
RD-31_021014_01	RD-110_021014_01AFMSD
RD-103(P07)_021014_01	RD-103(P07)_021014_01FMS
PZ-103_021014_01F	RD-103(P07)_021014_01FMSD
EB_RS-37_021014F	
RS-37_021014_01AF**	
RS-38_021014_01F**	
RD-27_021014_01F	
RD-109_021014_01AF**	
RD-110_021014_01AF**	
PZ-104_021014_01F	
RD-17_021014_01F	

\*\*Indicates sample underwent Level IV review.

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 32 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

The initial and continuing calibrations were performed at the required frequency.

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Barium	0.000654 mg/L	PZ-103_021014_01 EB_RS-37_021014 RS-37_021014_01A** RS-38_021014_01** RD-27_021014_01 PZ-104_021014_01 RD-17_021014_01
PB (prep blank)	Thallium	0.0000550 mg/L	PZ-103_021014_01 EB_RS-37_021014 RS-37_021014_01A** RS-38_021014_01** RD-27_021014_01 RD-110_021014_01A** PZ-104_021014_01 RD-17_021014_01 RD-103(P07)_021014_01
ICB/CCB	Antimony	0.654 ug/L	RS-37_021014_01A** RS-38_021014_01** RD-109_021014_01A** RD-110_021014_01A** RS-37_021014_01AF** RS-38_021014_01F** RD-109_021014_01AF** RD-110_021014_01AF**

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Thallium	0.0880 ug/L	RS-37_021014_01A** RS-38_021014_01** RD-110_021014_01A**
ICB/CCB	Beryllium Molybdenum Thallium	0.0960 ug/L 0.143 ug/L 0.0920 ug/L	RS-37_021014_01AF** RS-38_021014_01F** RD-110_021014_01AF**

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB_RS-37_021014	Thallium	0.00017 mg/L	0.00017U mg/L
RS-37_021014_01A**	Thallium	0.000062 mg/L	0.000062U mg/L
RD-27_021014_01	Thallium	0.000072 mg/L	0.000072U mg/L
RS-38_021014_01**	Antimony	0.00048 mg/L	0.00048U mg/L
RD-109_021014_01A**	Antimony	0.00078 mg/L	0.00078U mg/L
RD-110_021014_01A**	Antimony	0.00053 mg/L	0.00053U mg/L
RS-38_021014_01F**	Antimony	0.00040 mg/L	0.00040U mg/L
RD-109_021014_01AF**	Antimony	0.00065 mg/L	0.00065U mg/L

Samples EB\_RD-100\_012414, EB\_RD-100\_012414F (both from SDG 280-51492-1), EB\_RD-07\_020714, EB\_RD-07\_020714F (both from SDG 280-51958-1), EB\_RS-37\_021014, and EB\_RS-37\_021014F were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Lithium Sodium	0.0034 mg/L 3.1 mg/L	RS-37_021014_01A** RS-38_021014_01**
EB_RD-100_012414F	1/24/14	Sodium	0.24 mg/L	RS-37_021014_01AF**

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	PZ-103_021014_01 RS-37_021014_01A** RS-38_021014_01** RD-109_021014_01A** RD-110_021014_01A** PZ-104_021014_01
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	PZ-103_021014_01F RS-37_021014_01AF** RS-38_021014_01F** RD-109_021014_01AF** RD-110_021014_01AF** PZ-104_021014_01F
EB_RS-37_021014	2/10/14	Antimony Beryllium Molybdenum Nickel Sodium Thallium	0.00049 mg/L 0.00014 mg/L 0.00024 mg/L 0.00045 mg/L 0.25 mg/L 0.00017 mg/L	RS-37_021014_01A**
EB_RS-37_021014F	2/10/14	Barium Copper Molybdenum Nickel Sodium	0.00038 mg/L 0.00069 mg/L 0.00014 mg/L 0.00036 mg/L 0.24 mg/L	RS-37_021014_01AF**

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel Sodium	0.00041 mg/L 0.12 mg/L	PZ-103_021014_01 RS-37_021014_01A** RS-38_021014_01** RD-110_021014_01A** PZ-104_021014_01
FB_021214_19F	1/24/14	Manganese Nickel Sodium	0.00038 mg/L 0.00048 mg/L 0.13 mg/L	PZ-103_021014_01F RS-37_021014_01AF** RS-38_021014_01F** RD-110_021014_01AF** PZ-104_021014_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RS-37_021014_01A**	Beryllium Chromium Copper Nickel Thallium	0.00010 mg/L 0.00078 mg/L 0.0012 mg/L 0.00093 mg/L 0.000062 mg/L	0.00010U mg/L 0.00078U mg/L 0.0012U mg/L 0.00093U mg/L 0.000062U mg/L
RD-110_021014_01A**	Antimony Chromium Nickel Zinc	0.00053 mg/L 0.0010 mg/L 0.0013 mg/L 0.0064 mg/L	0.00053U mg/L 0.0010U mg/L 0.0013U mg/L 0.0064U mg/L
PZ-104_021014_01	Antimony Chromium Nickel Zinc	0.00065 mg/L 0.00074 mg/L 0.0017 mg/L 0.0035 mg/L	0.00065U mg/L 0.00074U mg/L 0.0017U mg/L 0.0035U mg/L
PZ-103_021014_01F	Antimony Copper Nickel Zinc	0.00074 mg/L 0.00085 mg/L 0.0014 mg/L 0.0059 mg/L	0.00074U mg/L 0.00085U mg/L 0.0014U mg/L 0.0059U mg/L
RS-37_021014_01AF**	Copper Nickel	0.00080 mg/L 0.00073 mg/L	0.00080U mg/L 0.00073U mg/L
RD-110_021014_01AF**	Nickel Zinc	0.0011 mg/L 0.0044 mg/L	0.0011U mg/L 0.0044U mg/L
PZ-104_021014_01F	Antimony Nickel Zinc	0.00059 mg/L 0.0017 mg/L 0.0055 mg/L	0.00059U mg/L 0.0017U mg/L 0.0055U mg/L
PZ-103_021014_01	Antimony	0.00079 mg/L	0.00079U mg/L
RS-38_021014_01**	Antimony Chromium Copper Zinc	0.00048 mg/L 0.0023 mg/L 0.0015 mg/L 0.011 mg/L	0.00048U mg/L 0.0023U mg/L 0.0015U mg/L 0.011U mg/L
RD-109_021014_01A**	Antimony Copper	0.00078 mg/L 0.0024 mg/L	0.00078U mg/L 0.0024U mg/L
RS-38_021014_01F**	Antimony Zinc	0.00040 mg/L 0.0063 mg/L	0.00040U mg/L 0.0063U mg/L
RD-109_021014_01AF**	Antimony Copper Zinc	0.00065 mg/L 0.0013 mg/L 0.013 mg/L	0.00065U mg/L 0.0013U mg/L 0.013U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RS-37_021014_01AMS/MSD (RS-38_021014_01**)	Aluminum	135 (75-125)	135 (75-125)	-	J (all detects)	A
PZ-103_021014_01MS/MSD (PZ-103_021014_01 RS-38_021014_01** RD-27_021014_01 PZ-104_021014_01 RD-17_021014_01)	Tin	-	73 (75-125)	-	J (all detects) UJ (all non-detects)	A

For PZ-103\_021014\_01MS/MSD, no data were qualified for Barium and Manganese percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51987-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51987-1	RS-38_021014_01**	Aluminum	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51987-1	PZ-103_021014_01 RS-38_021014_01** RD-27_021014_01 PZ-104_021014_01 RD-17_021014_01	Tin	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51987-1	PZ-103_021014_01 EB_RS-37_021014 RS-37_021014_01A** RS-38_021014_01** RD-27_021014_01 RD-109_021014_01A** RD-110_021014_01A** PZ-104_021014_01 RD-17_021014_01 RD-31_021014_01 RD-103(P07)_021014_01 PZ-103_021014_01F EB_RS-37_021014F RS-37_021014_01AF** RS-38_021014_01F** RD-27_021014_01F RD-109_021014_01AF** RD-110_021014_01AF** PZ-104_021014_01F RD-17_021014_01F RD-31_021014_01F RD-103(P07)_021014_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51987-1	EB_RS-37_021014	Thallium	0.00017U mg/L	A	B
280-51987-1	RS-37_021014_01A**	Thallium	0.000062U mg/L	A	B
280-51987-1	RD-27_021014_01	Thallium	0.000072U mg/L	A	B
280-51987-1	RS-38_021014_01**	Antimony	0.00048U mg/L	A	B
280-51987-1	RD-109_021014_01A**	Antimony	0.00078U mg/L	A	B
280-51987-1	RD-110_021014_01A**	Antimony	0.00053U mg/L	A	B

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51987-1	RS-38_021014_01F**	Antimony	0.00040U mg/L	A	B
280-51987-1	RD-109_021014_01AF**	Antimony	0.00065U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51987-1	RS-37_021014_01A**	Beryllium Chromium Copper Nickel Thallium	0.00010U mg/L 0.00078U mg/L 0.0012U mg/L 0.00093U mg/L 0.000062U mg/L	A	F
280-51987-1	RD-110_021014_01A**	Antimony Chromium Nickel Zinc	0.00053U mg/L 0.0010U mg/L 0.0013U mg/L 0.0064U mg/L	A	F
280-51987-1	PZ-104_021014_01	Antimony Chromium Nickel Zinc	0.00065U mg/L 0.00074U mg/L 0.0017U mg/L 0.0035U mg/L	A	F
280-51987-1	PZ-103_021014_01F	Antimony Copper Nickel Zinc	0.00074U mg/L 0.00085U mg/L 0.0014U mg/L 0.0059U mg/L	A	F
280-51987-1	RS-37_021014_01AF**	Copper Nickel	0.00080U mg/L 0.00073U mg/L	A	F
280-51987-1	RD-110_021014_01AF**	Nickel Zinc	0.0011U mg/L 0.0044U mg/L	A	F
280-51987-1	PZ-104_021014_01F	Antimony Nickel Zinc	0.00059U mg/L 0.0017U mg/L 0.0055U mg/L	A	F
280-51987-1	PZ-103_021014_01	Antimony	0.00079U mg/L	A	F
280-51987-1	RS-38_021014_01**	Antimony Chromium Copper Zinc	0.00048U mg/L 0.0023U mg/L 0.0015U mg/L 0.011U mg/L	A	F
280-51987-1	RD-109_021014_01A**	Antimony Copper	0.00078U mg/L 0.0024U mg/L	A	F

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51987-1	RS-38_021014_01F**	Antimony Zinc	0.00040U mg/L 0.0063U mg/L	A	F
280-51987-1	RD-109_021014_01AF**	Antimony Copper Zinc	0.00065U mg/L 0.0013U mg/L 0.013U mg/L	A	F

LDC #: 31419C4

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-11-14

SDG #: 280-51987-1

Level V/IV

Page: 1 of 1

Laboratory: Test America Inc.

9m/4

Reviewer: MG

2nd Reviewer: JVB

METHOD: Metals (EPA SW 846 Method 6020A/7000) 6020/6010B/7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-10-14
II.	ICP/MS Tune	A <del>X</del>	not reviewed for Level V
III.	Calibration	A <del>X</del>	not reviewed for Level V
IV.	Blanks	SW	CCBs not reviewed for Level V
V.	ICP Interference Check Sample (ICS) Analysis	A <del>X</del>	not reviewed for Level V
VI.	Matrix Spike Analysis	SW	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A <del>X</del>	not reviewed for Level V
<del>X.</del>	<del>Furnace Atomic Absorption QC</del>	<del>N</del>	<del>not utilized</del>
XI.	ICP Serial Dilution	A <del>X</del>	
XII.	Sample Result Verification	A <del>X</del>	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	SW	EB = 2, 13

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

\*\* level IV

Validated Samples:  
all water

9m/4

EB = EB-RD-100-012414 (SDG: 280-51492-1)  
EB = EB-RD-100-012414F (SDG: 280-51492-1)  
FB = FB-021214-19 (SDG: 280-52081-1)  
FB = FB-021214-19F ( )

1	PZ-103_021014_01	11	RD-103(PZ07)_021014_01	21	RD-31_021014_01F	31	RD-103(PZ07)_021014_01FMS
2	EB_RS-37_021014	12	PZ-103_021014_01F	22	RD-103(PZ07)_021014_01F	32	RD-103(PZ07)_021014_01FMSD
3	RS-37_021014_01A **	13	EB_RS-37_021014F	23	PZ-103_021014_01MS	33	
4	RS-38_021014_01 **	14	RS-37_021014_01AF **	24	PZ-103_021014_01MSD	34	
5	RD-27_021014_01	15	RS-38_021014_01F **	25	RS-37_021014_01AMS	35	
6	RD-109_021014_01A **	16	RD-27_021014_01F	26	RS-37_021014_01AMSD	36	
7	RD-110_021014_01A **	17	RD-109_021014_01AF **	27	RD-103(PZ07)_021014_01MS	37	
8	PZ-104_021014_01	18	RD-110_021014_01AF **	28	RD-103(PZ07)_021014_01MSD	38	
9	RD-17_021014_01	19	PZ-104_021014_01F	29	RD-110_021014_01AFMS	39	PBW1
10	RD-31_021014_01	20	RD-17_021014_01F	30	RD-110_021014_01AFMSD	40	PBW2

Notes: Samples appended with "F" were analyzed as dissolved

EB = EB-RD-07-020714 (SDG: 280-51958-1)  
EB = EB-RD-07-020714F ( )

**Method:Metals (EPA SW 846 Method 6010/7000/6020)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
<b>III. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL (+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.	✓			
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
<b>IX. ICP Serial Dilution</b>				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			



Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Ba		0.000654		0.0033										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-5,7-9,11 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	2	3	5							
Tl		0.0000550		0.00028	0.00017	0.000062	0.000072							

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 3,4,6,7,14,15,17,18

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	4	6	7	15	17					
Sb			0.654	0.0033	0.00048	0.00078	0.00053	0.00040	0.00065					

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 3,4,7

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	3									
Tl			0.0880	0.00044	see PB									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 14,15,18 (>5x or ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Be			0.0960	0.00048										
Mo			0.143	0.00072										
Tl			0.0920	0.00046										



**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N/A Were field blanks identified in this SDG?  
 N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 1/24/14 **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB **Associated Samples:** 3,4 (>5x)

Analyte	Blank ID	Sample Identification									
	EB_RD-100_012414	Action Level	No Qual's.								
Li	0.0034	0.0170									
Na	3.1	15.50									

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 1/24/14 **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB **Associated Samples:** 14 (>5x)

Analyte	Blank ID	Sample Identification									
	EB_RD-100_012414F	Action Level	No Qual.								
Na	0.24	1.20									

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/12/14 **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: **Associated Samples:** 1,3,4,7,8 **Qual:** U (F)

Analyte	Blank ID	Sample Identification									
	FB_021214_19	Action Level	3	7	8						
Ni	0.00041	0.0020	0.00093	0.0013	0.0017						
Na	0.12	0.600									

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N/A Were field blanks identified in this SDG?

N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 1/24/14 **Soil factor applied** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ **Associated Samples:** 12,14,15,18,19 **Qual:** U (F)

Analyte	Blank ID	Sample Identification									
	FB_021214_19F	Action Level	12	14	18	19					
Mn	0.00038	0.0019									
Ni	0.00048	0.0024	0.0014	0.00073	0.0011	0.0017					
Na	0.13	0.650									

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/7/14 **Soil factor applied** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: EB **Associated Samples:** 1,3,4,6,7,8 **Qual:** U (F)

Analyte	Blank ID	Sample Identification									
	EB_RD-07_020714	Action Level	1	3	4	6	7	8			
Sb	0.00044	0.0022	0.00079		0.00048	0.00078	0.00053	0.00065			
Cr	0.00061	0.0030		0.00078	0.0023		0.0010	0.00074			
Cu	0.00078	0.0039		0.0012	0.0015	0.0024					
Zn	0.0028	0.0140			0.011		0.0064	0.0035			

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/7/14 **Soil factor applied** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: EB **Associated Samples:** 12,14,15,17,18,19 **Qual:** U (F)

Analyte	Blank ID	Sample Identification									
	EB_RD-07_020714F	Action Level	12	14	15	17	18	19			
Sb	0.00045	0.0022	0.00074		0.00040	0.00065		0.00059			
Cu	0.00080	0.0040	0.00085	0.00080		0.0013					
Zn	0.0026	0.0130	0.0059		0.0063	0.013	0.0044	0.0055			

## VALIDATION FINDINGS WORKSHEET Field Blanks

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N / N/A Were field blanks identified in this SDG?

N / N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/10/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB Associated Samples: 3 Qual: U (F)

Analyte	Blank ID	Sample Identification												
	2	Action Level	3											
Sb	0.00049	0.0024												
Be	0.00014	0.00070	0.00010											
Mo	0.00024	0.0012												
Ni	0.00045	0.0022	0.00093											
Na	0.25	1.250												
Tl	0.00017	0.00085	0.000062											

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/10/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other EB Associated Samples: 14 Qual: U (F)

Analyte	Blank ID	Sample Identification												
	13	Action Level	14											
Ba	0.00038	0.0019												
Cu	0.00069	0.0034	0.00080											
Mo	0.00014	0.00070												
Ni	0.00036	0.0018	0.00073											
Na	0.24	1.200												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
Initial and Continuing Calibration Calculation Verification

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated	Reported	Acceptable (Y/N)
					%R	%R	
<u>1431</u> ICV	ICP (Initial calibration)	<u>Al</u>	<u>255.34</u>	<u>250</u>	<u>102</u>	<u>102</u>	<u>Y</u>
<u>1227</u> ICV	ICP/MS (Initial calibration)	<u>Tl</u>	<u>40.165</u>	<u>40.0</u>	<u>100</u>	<u>100</u>	↓
<u>1627</u> ICV	CVAA (Initial calibration)	<u>Hg</u>	<u>3.970</u>	<u>4.00</u>	<u>99</u>	<u>99</u>	
<u>0233</u> CCV	ICP (Continuing calibration)	<u>B</u>	<u>530.92</u>	<u>500</u>	<u>106</u>	<u>106</u>	
<u>0104</u> CCV	ICP/MS (Continuing calibration)	<u>Sb</u>	<u>48.908</u>	<u>50.0</u>	<u>98</u>	<u>98</u>	
<u>2119</u> CCV	CVAA (Continuing calibration)	<u>Hg</u>	<u>5.347</u>	<u>5.00</u>	<u>107</u>	<u>107</u>	
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
 D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$
 Where, I = Initial Sample Result (mg/L)  
 SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
<u>2115</u> <u>ICSAB</u>	ICP interference check	<u>Se</u>	<u>101.32 (mg/L)</u>	<u>100 (mg/L)</u>	<u>101</u>	<u>101</u>	<u>Y</u>
<u>0030</u> <u>LCS</u>	Laboratory control sample	<u>Cr</u>	<u>0.0403 (mg/L)</u>	<u>0.0400 (mg/L)</u>	<u>101</u>	<u>101</u>	↓
<u>0226</u> <u>25</u>	Matrix spike	<u>Al</u>	<u>(SSR-SR)</u> <u>2.708 (mg/L)</u>	<u>2.00 (mg/L)</u>	<u>135</u>	<u>135</u>	
<u>0226 / 0228</u> <u>25 / 26</u>	Duplicate	<u>Li</u>	<u>1.116 (mg/L)</u>	<u>1.122 (mg/L)</u>	<u>1</u>	<u>1</u>	
<u>0222 / 0224</u> <u>3</u>	ICP serial dilution	<u>Na</u>	<u>119.29 (mg/L)</u>	<u>126.29 (mg/L)</u>	<u>5.9</u>	<u>5.9</u>	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
- N N/A Are all detection limits below the CRDL?

Detected analyte results for # 3, Li were recalculated and verified using the following equation:

Concentration =  $\frac{(RD)(FV)(Dil)}{(In. Vol.)}$

Recalculation:

- RD = Raw data concentration
- FV = Final volume (ml)
- In. Vol. = Initial volume (ml) or weight (G)
- Dil = Dilution factor

$$\frac{(0.05997 \text{ mg/L})(0.050 \text{ L})}{0.050 \text{ L}} = 0.05997 \text{ mg/L}$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	3	Li	0.060	0.060	Y
2	4	Pb	0.00066	0.00066	↓
3	6	Ag	0.000078	0.000078	
4	7	As	0.00090	0.00090	
5	14	Cu	0.00080	0.00080	
6	15	Co	0.00027	0.00027	
7	17	B	0.43	0.43	
8	18	Ni	0.0011	0.0011	

Note: method 7470A was N.D. for level IV samples

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 21, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

PZ-103\_021014\_01  
RD-27\_021014\_01  
EB\_RD-109\_021014  
RD-109\_021014\_01A\*\*  
RD-110\_021014\_01A\*\*  
RD-103(P07)\_021014\_01  
RD-27\_021014\_01MS  
RD-27\_021014\_01MSD  
RD-27\_021014\_01DUP

\*\*Indicates sample underwent Level IV review



## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride, Nitrate as Nitrogen, and Nitrite.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
PZ-103_021014_01	Nitrate as N	51.50 hours	48 hours	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable for samples on which an EPA Level IV review was performed.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51987-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by EPA Level V criteria.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51987-1	PZ-103_021014_01	Nitrate as N	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51987-1	PZ-103_021014_01 RD-27_021014_01 EB_RD-109_021014 RD-109_021014_01A** RD-110_021014_01A** RD-103(P07)_021014_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

LDC #: 31419C6  
 SDG #: 280-51987-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V *W*

Date: 3-11-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JL

*MA*

**METHOD:** Fluoride, Nitrate-N, Nitrite ~~W~~ (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: <u>2-10-14</u>
II	Initial calibration	A <del>X</del>	<u>not reviewed for Level V</u>
III.	Calibration verification	A <del>X</del>	<u>not reviewed for Level V</u>
IV	Blanks	A	<u>CCBS not reviewed for level V</u>
V	Matrix Spike/Matrix Spike Duplicates	A	<u>MS/MSD</u>
VI.	Duplicates	A	<u>DUP</u>
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	A <del>X</del>	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	ND	<u>EB=3, EB=EB-RD-100-012414 (SDG: 280-51492-1)</u>

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

FB=FB-021014-19 (SDG 280-52081-1)  
~~FB=FB-021014~~  
EB=EB-RD-07-020714 (SDG: 280-51958-1)

Validated Samples:  
*\*kwe/IV all water*

1	PZ-103_021014_01	11		21		31	
2	RD-27_021014_01	12		22		32	
3	EB_RD-109_021014	13		23		33	
4	RD-109_021014_01A	14	**	24		34	
5	RD-110_021014_01A	15	**	25		35	
6	RD-103(PZ07)_021014_01	16		26		36	
7	RD-27_021014_01MS	17		27		37	
8	RD-27_021014_01MSD	18		28		38	
9	RD-27_021014_01DUP	19		29		39	PBW1
10		20		30		40	PBW2

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method 300.0)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $> 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq 2X$ CRDL ( $\leq 2X$ CRDL for soil) was used for samples that were $\leq 5X$ the CRDL, including when only one of the duplicate sample values were $< 5X$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.		✓		







LDC #: 31419C6

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JVG

**Method:** Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of F was recalculated. Calibration date: 2-6-14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found X 100}}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc (ug/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	F	s1	0.2	4770727	0.9995	not reported	Y
		s2	0.5	11831425			
		s3	1	23796339			
		s4	4	87437869			
		s5	8	185732724			
		s6	10	228200556			
Calibration verification	NO <sub>3</sub> -N	<sup>1850</sup> CCV	5.00 (mg/L)	5.00 (mg/L)	100	100	
Calibration verification	NO <sub>2</sub>	<sup>1850</sup> CCV	16.46 (mg/L)	16.5 (mg/L)	100	100	
Calibration verification	F	<sup>1948</sup> CCV	5.22 (mg/L)	5.00 (mg/L)	104	104	

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31419C6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JVZ

**METHOD:** Inorganics, Method 300.0

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$     Where,    Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$     Where,    S = Original sample concentration  
 D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
1147 LCS	Laboratory control sample	NO <sub>3</sub> -N	4.97 (mg/L)	5.00 (mg/L)	99	99	Y
—	Matrix spike sample	—	(SSR-SR) —	—	—	—	—
—	Duplicate sample	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

PZ-103\_021014\_01  
TB\_PZ-103\_021014

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB\_PZ-103\_021014 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_PZ-103_021014	2/10/14	TPH as gasoline (C6-C12)	11 ug/L	PZ-103_021014_01

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	TPH as gasoline (C6-C12)	17 ug/L	PZ-103_021014_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	PZ-103_021014_01 TB_PZ-103_021014	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

LDC #: 31419C7

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/14/14

SDG #: 280-51987-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: SVG  
2nd Reviewer: [Signature]

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	ICS 10
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	SW	TB = 2    FB = FB_021214_19 (280-520811)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank  
FB = EB-RD-07-020714(280-51958-1)

Validated Samples:

Water

1	PZ-103_021014_01	11	MB 280-2/3/02/4	21		31
2	TB_PZ-103_021014	12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

PZ-103\_021014\_01  
RS-37\_021014\_01A\*\*  
RS-38\_021014\_01\*\*  
RD-109\_021014\_01A\*\*  
RD-110\_021014\_01A\*\*

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration was performed at required frequencies. The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as extractable contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## IX. Compound Quantitation

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

## X. System Performance

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	PZ-103_021014_01 RS-37_021014_01A** RS-38_021014_01** RD-109_021014_01A** RD-110_021014_01A**	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG



LDC #: 31419C8  
 SDG #: 280-51987-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V/IV

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JV4  
 2nd Reviewer: M

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	Initial calibration	A	% RSD ≤ 20%
III.	Calibration verification/ICV	A	OW/1W ≤ 20%
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1D
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	FB = FB-021214-19 (280-52081-1) EB = EB-RD-07-020714 (280-51958-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Level IV \*\* Water

1	PZ-103_021014_01	11	MB 280-2127061-21	31
2	RS-37_021014_01A **	12		32
3	RS-38_021014_01 **	13		33
4	RD-109_021014_01A **	14		34
5	RD-110_021014_01A **	15		35
6		16		36
7		17		37
8		18		38
9		19		39
10		20		40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_


Method: GC HPLC

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	/			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		/		
Did the initial calibration meet the curve fit acceptance criteria?			/	
Were the RT windows properly established?	/			
<b>IV. Continuing calibration</b>				
What type of continuing calibration calculation was performed? ___%D or ___%R	/			
Was a continuing calibration analyzed daily?	/			
Were all percent differences (%D) < 20%.0 or percent recoveries 80-120%?	/			
Were all the retention times within the acceptance windows?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	/			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

LDC #: 31419C8

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 

METHOD: GC        / HPLC       


The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

Where:  
CF = A/C  
average CF = sum of the CF/number of standards  
%RSD = 100 \* (S/X)  
A = Area of compound  
C = Concentration of compound  
S = Standard deviation of calibration factors  
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (150 std)	Recalculated CF (150 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL SGC U2A	7/16/2013	C15-C20	172692.00	172692.45	179276.15	179276.17	5.2	5.2

LDC # 31419C8

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 

METHOD: GC    HPLC   

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) =  $100 * (N - C)/N$

Where:  
N = Initial Calibration Factor or Nominal Amount  
C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated % D
1	02170004	2/17/2014	C15-C20	150	147.28	147.28	1.8	1.8
2	02170016	2/17/2014	C15-C20	150	147.46	147.46	1.7	1.7

LDC #: 3141908

## VALIDATION FINDINGS WORKSHEET Surrogate Results Verification

Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: CC

METHOD:  GC  HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
H	RTX-1	SD	SD	100	100	0

Sample ID: \_\_\_\_\_

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Surrogate Compound	Surrogate Compound	Surrogate Compound	Surrogate Compound
A Chlorobenzene (CBZ)	G Octacosane	M Benzo(e)Pyrene	S 1-Chloro-3-Nitrobenzene
B 4-Bromofluorobenzene (BFB)	H Ortho-Terphenyl	N Terphenyl-D14	T 3,4-Dinitrotoluene
C a,a,a-Trifluorotoluene	I Fluorobenzene (FBZ)	O Decachlorobiphenyl (DCB)	U Triphenyltin
D Bromochlorobenzene	J n-Triacontane	P 1-methylnaphthalene	V Tri-n-propyltin
E 1,4-Dichlorobutane	K Hexacosane	Q Dichlorophenyl Acetic Acid (DCAA)	W Tributyl Phosphate
F 1,4-Difluorobenzene (DFB)	L Bromobenzene	R 4-Nitrophenol	X Triphenyl Phosphate

LDC #: 31419Cg

**VALIDATION FINDINGS WORKSHEET**

**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Reviewer: JVG

2nd Reviewer: A

METHOD:  GC  HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 \* (SSC/SA)

RPD = (((SSCLCS - SSCLCSD) \* 2) / (SSCLCS + SSCLCSD)) \* 100

Where SSC = Spiked sample concentration  
LCS = Laboratory Control Sample

SA = Spike added  
LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS/D 280-212706/2, 3-B

Compound	Spike Added (mg/L)		Spike Sample Concentration (mg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel <sup>C15-C20</sup> (8015)	1.13	1.13	1.25	1.21	111	111	108	108	3	3
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 7141908

### VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC HPLC

Y N N/A  
Y N N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds within 10% of the reported results?

$$\text{Concentration} = \frac{(A)(F_v)(D_f)}{(RF)(V_s \text{ or } W_s)(\%S/100)}$$

Example:

Sample ID: ND Compound Name \_\_\_\_\_  
ICS C15-C20

$$\text{Concentration} = \frac{(224038964) (1 \text{ ml})}{(179276.15) (1000 \text{ ml})} = 1.2497 \approx 1.25 \text{ mg/L}$$

- A= Area or height of the compound to be measured
- Fv= Final Volume of extract
- Df= Dilution Factor
- RF= Average response factor of the compound  
in the initial calibration
- Vs= Initial volume of the sample
- Ws= Initial weight of the sample
- %S= Percent Solid

#	Sample ID	Compound	Reported Concentrations (mg/L)	Recalculated Results Concentrations ( )	Qualifications
			1.25		

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 20, 2014  
**Matrix:** Water  
**Parameters:** Formaldehyde  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

RD-109\_021014\_01A\*\*  
EB\_RD-110\_021014  
RD-110\_021014\_01A\*\*

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0%.

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0%.

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

Sample EB\_RD-110\_021014 was identified as an equipment blank. No formaldehyde was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No formaldehyde was found.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## IX. Compound Quantitation

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

## X. System Performance

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	RD-109_021014_01A** EB_RD-110_021014 RD-110_021014_01A**	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

LDC #: 31419C71

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/14/14

SDG #: 280-51987-1

Level V/IV

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: SVL

2nd Reviewer: A

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	Initial calibration	NA	2 RSD $\leq$ 20%
III.	Calibration verification/ICV	NA	CV/191 $\leq$ 20%
IV.	Blanks	A	
V.	Surrogate recovery	N	Not req'd.
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	NA	
IX.	Compound Quantitation RL/LOQ/LODs	NA	
X.	System Performance	NA	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	EB = 2      FB = FB_021214-19

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

(280-52081-1)

Validated Samples:

\*\* level IV      Water

1	RD-109_021014_01A **	11	MB 240-119395/AA	21		31	
2	EB_RD-110_021014	12		22		32	
3	RD-110_021014_01A **	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: GC / HPLC


Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	/			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		/	/	
Did the initial calibration meet the curve fit acceptance criteria?			/	
Were the RT windows properly established?	/			
<b>III. Continuing calibration</b>				
What type of continuing calibration calculation was performed? <u>  </u> %D or <u>  </u> %R	/			
Was a continuing calibration analyzed daily?	/			
Were all percent differences (%D) < 20%.0 or percent recoveries 80-120%?	/			
Were all the retention times within the acceptance windows?	/			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>V. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?		/		
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		



LDC #: 31419C71

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 

METHOD: GC \_\_\_\_\_ HPLC 

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

$$CF = A/C$$

$$\text{average CF} = \text{sum of the CF/number of standards}$$

$$\%RSD = 100 * (S/X)$$

Where:

A = Area of compound

C = Concentration of compound

S = Standard deviation of calibration factors

X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (2 std)	Recalculated CF (2 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL A2HP2	4/18/2013	Formaldehyde	296754	296754	298251	298251	2.7	2.7

LDC # 31419C71

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC \_\_\_\_\_ HPLC /

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) =  $100 * (N - C)/N$

Where:

N = Initial Calibration Factor or Nominal Amount

C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CF	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	L1021204	2/12/2014	Formaldehyde	298251.1429	301834	301834	1.2	1.2

LDC #: 31419C71

**VALIDATION FINDINGS WORKSHEET**

**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Reviewer: JVG

2nd Reviewer: [Signature]

METHOD: GC / HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

$\% \text{Recovery} = 100 * (\text{SSC}/\text{SA})$

$\text{RPD} = (((\text{SSCLCS} - \text{SSCLCSD}) * 2) / (\text{SSCLCS} + \text{SSCLCSD})) * 100$

Where SSC = Spiked sample concentration  
LCS = Laboratory Control Sample

SA = Spike added  
LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS 240 - 119335 / 5-A

Compound	Spike Added ( $\mu\text{g}/\text{L}$ )		Spike Sample Concentration ( $\mu\text{g}/\text{L}$ )		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
Formaldehyde (8315)	200	NA	162	NA	81	81				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31419C71

# VALIDATION FINDINGS WORKSHEET

## Sample Calculation Verification

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: R

METHOD: GC  HPLC

Y N N/A  
 Y N N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds within 10% of the reported results?

$$\text{Concentration} = \frac{(A)(F_v)(D_f)}{(RF)(V_s \text{ or } W_s)(\%S/100)}$$

A= Area or height of the compound to be measured  
Fv= Final Volume of extract  
Df= Dilution Factor  
RF= Average response factor of the compound  
in the initial calibration  
Vs= Initial volume of the sample  
Ws= Initial weight of the sample  
%S= Percent Solid

Example:

Sample ID. MD KCS Compound Name Formaldehyde

$$\text{Concentration} = \frac{(968353) (5 \text{ ml}) (1000)}{(298251.1) (100 \text{ ml})} = 162 \text{ ug/L}$$

#	Sample ID	Compound	Reported Concentrations ( <u>ug/L</u> )	Recalculated Results Concentrations ( )	Qualifications
			<u>162</u>		

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Perchlorate  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51987-1

**Sample Identification**

RD-109\_021014\_01A\*\*  
RD-110\_021014\_01A\*\*  
RD-31\_021014\_01  
RD-103(P07)\_021014\_01  
RD-103(P07)\_021014\_01MS  
RD-103(P07)\_021014\_01MSD

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check is not required by the method.

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

The ion abundance ratios were within validation criteria.

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 15.0%.

All the limit of detection verification (LODV) were less than or equal to 30.0%.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0%.

The ion abundance ratios were within validation criteria.

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No perchlorate was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No perchlorate was found.

## VI. Surrogate Spikes

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-103(P07)_021014_01MS/MSD (RD-103(P07)_021014_01)	Perchlorate	-	-	17 ( $\leq 15$ )	J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard recoveries were within QC limits.

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## XII. Compound Quantitation

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-51987-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

### **XIII. System Performance**

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51987-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51987-1	RD-103(P07)_021014_01	Perchlorate	J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (E)
280-51987-1	RD-109_021014_01A** RD-110_021014_01A** RD-31_021014_01 RD-103(P07)_021014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	r <sup>2</sup>
IV.	Continuing calibration/ICV	A	CV/100 ≤ 15% LODV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	N	No + req'd.
VII.	Matrix spike/Matrix spike duplicates	SW	.
VIII.	Laboratory control samples	A	LCS 16
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	FB = FB-021214-19 (280-52681-1) EB = EB-RD-07-020714 (280-51958-1)

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

\*\* level IV WATER

1	RD-109_021014_01A **	11	MB 280-213473/14	21		31	
2	RD-110_021014_01A **	12		22		32	
3	RD-31_021014_01	13		23		33	
4	RD-103(PZ07)_021014_01	14		24		34	
5	RD-103(PZ07)_021014_01MS	15		25		35	
6	RD-103(PZ07)_021014_01MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Method: GC  LC/MS

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. LC/MS Instrument performance check</b>				
Were the instrument performance reviewed and found to be within the specified criteria?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq$ 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria of $\geq$ 0.990?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq$ 15%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>XIII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the performance evaluation (PE) samples within the acceptance limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within ± 30 seconds from the associated calibration standard?	/			
<b>X. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		
<del>Target compounds were detected in the field blanks.</del>				



**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Method: LCMS Perchlorate (EPASW 846 Method 6860)

Calibration Date	System	Compound	Standard	(Y) Area*200	(X) Conc ratio
2/18/2014	LCMS1	Perchlorate	1	25.77269	20.00
			2	56.29437	50.00
			3	116.56045	100.00
			4	219.60492	200.00
			5	548.45658	500.00
			6	1050.09430	1000.00

Regression Output	Calculated	Reported WLR
Constant	<i>b</i> = 9.495953	5.648000
R Squared	<i>r</i> <sup>2</sup> = 0.999574	0.999000
X Coefficient(s)	<i>m</i> = 1.048025	1.29740
Correlation Coefficient	0.999787	
Coefficient of Determination ( <i>r</i> <sup>2</sup> )	0.999574	0.999000

LDC#: 31419C87

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: A

Method: LCMS Perchlorate (EPASW 846 Method 6860)

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) =  $100 * (N - C)/N$

Where:

N = Initial Calibration Factor or Nominal Amount

C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	ICV 280-213472/13	2/18/2014	Perchlorate	0.200	0.188	0.188	6.0	6.0



LDC #: 3/4/19 C87

## VALIDATION FINDINGS WORKSHEET

### Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: a

**METHOD:** LC/MS Perchlorate (EPA SW 846 Method 6850/6860)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SSC - SC) / SA$

Where: SSC = Spiked sample concentration  
 SA = Spike added

SC = Sample concentration

RPD =  $|MS - MSD| * 2 / (MS + MSD)$

MS = Matrix spike percent recovery

MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 5/6

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
						Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Perchlorate	0.050	0.050	D	0.0556	0.0468	111	111	94	94	17	17

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31419 C87

## VALIDATION FINDINGS WORKSHEET

### Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** LC/MS Perchlorate (EPA SW 846 Method 6850/6860)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SC/SA)

Where: SSC = Spike concentration  
 SA = Spike added

RPD = | LCS - LCSD | \* 2 / (LCS + LCSD)

LCS = Laboratory control sample percent recovery

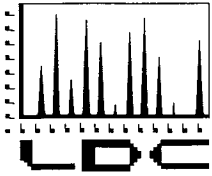
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS/D 280 - 2/3473/15, 16

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc	Reported	Recalc	Reported	Recalc
Perchlorate	0.050	0.050	0.0522	0.0564	104	104	113	113	8	8

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 26, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

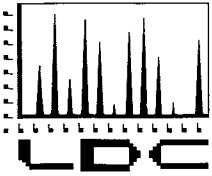
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### **LDC Project # 31419:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51905-1, 280-51958-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-
280-51987-1, 280-52029-1	Trichloropropane, Metals, Wet Chemistry, Perchlorate,
280-52215-1, 280-51988-1	Total Petroleum Hydrocarbons as Gasoline, Total
280-52090-1	Petroleum Hydrocarbons as Extractables, Chlorinated Pesticides, Polychlorinated Biphenyls, Formaldehyde, Perchlorate, Dioxins/Dibenofurans, N- Nitrosodimethylamine

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31419 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																								
LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2-S)		1,4-Dioxane (8260B-S)		SVOA (8270C -SIM)		NDMA (1625C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Sb (6020)		Diss. Sb (6020)		GRO (8015B)		DRO (8015B)												
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	
A	280-51905-1	03/04/14	03/25/14	9	0	2	0	3	0	-	-	-	-	-	-	-	6	0	6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	280-51958-1	03/04/14	03/25/14	12	0	-	-	5	0	-	-	-	-	-	-	-	9	0	9	0	-	-	-	-	-	-	9	0	6	0	-	-	-	-	-	-	-	-	-	-
C	280-51987-1	03/04/14	03/25/14	10	0	-	-	-	-	1	0	-	-	0	0	0	0	6	0	6	0	1	0	1	0	2	0	1	0	-	-	-	-	-	-	-	-	-	-	-
C	280-51987-1	03/04/14	03/25/14	2	0	-	-	-	-	4	0	-	-	1	0	3	0	4	0	4	0	0	0	0	0	0	0	4	0	-	-	-	-	-	-	-	-	-	-	-
E	280-52029-1	03/04/14	03/25/14	13	0	-	-	3	0	-	-	-	-	-	-	-	10	0	10	0	-	-	-	-	-	-	4	0	2	0	-	-	-	-	-	-	-	-	-	-
G	280-52215-1	03/04/14	03/25/14	2	0	-	-	2	0	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	T/PG			48	0	2	0	13	0	5	0	1	0	1	0	3	0	35	0	35	0	1	0	1	0	15	0	13	0	0	0	0	0	0	0	0	0	0	173	

EDD Client Select IV LDC #31419 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																							
LDC	SDG#	DATE REC'D	(3) DATE DUE	Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		F (300.0)		NO <sub>3</sub> (300.0)		NO <sub>2</sub> (300.0)																									
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-51905-1	03/04/14	03/25/14	-	-	-	-	2	0	2	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	280-51958-1	03/04/14	03/25/14	-	-	-	-	4	0	3	0	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	280-51987-1	03/04/14	03/25/14	-	-	1	0	2	0	2	0	3	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	280-51987-1	03/04/14	03/25/14	-	-	2	0	2	0	1	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	280-51988-1	03/04/14	03/25/14	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	280-52029-1	03/04/14	03/25/14	-	-	-	-	1	0	4	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	280-52090-1	03/04/14	03/25/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	T/PG			4	0	3	0	11	0	12	0	13	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52090-1

**Sample Identification**

FB\_021214\_19

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. HRGC/HRMS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4048022	2/17/14	1,2,3,4,6,7,8-HpCDD OCDD OCDF	1.1 pg/L 21 pg/L 2.2 pg/L	All samples in SDG 280-52090-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
FB_021214_19	OCDD	17 pg/L	17U pg/L

Sample FB\_021214\_19 was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	OCDD	17 pg/L	No associated samples in this SDG

### VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Regional Quality Assurance and Quality Control

Not applicable.

### IX. Internal Standards

Internal standards data were not reviewed for Level V.

### X. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52090-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XII. System Performance

Raw data were not reviewed for this SDG.

### XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### **XIV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-52090-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52090-1	FB_021214_19	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-52090-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52090-1	FB_021214_19	OCDD	17U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-52090-1**

No Sample Data Qualified in this SDG

LDC #: 31419F21

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-10-14

SDG #: 280-52090-1/H4B170401

Level IV ✓

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	≤20/30
IV.	Continuing calibration/ICV	A	CV/ICV ≤20/30
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation <del>R/LCQ/LODs</del>	A	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	SW	FB=1

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	FB_021214_19	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	4048022	30		40	

Notes: \_\_\_\_\_

# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were all samples associated with a method blank?

N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

N N/A Was the method blank contaminated?

**Blank extraction date:** 02/17/14    **Blank analysis date:** 02/25/14    **Associated samples:** All Qual U (B)

**Conc. units:** pg/L

Compound	Blank ID	Sample Identification							
	4048022	5x	1						
F	1.1	5.50							
G	21	105	17						
Q	2.2*	11.0							

\*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** HRGC/HRMS Dioxins/Furans (EPA SW 846 Method 8290)

**Blank units:** pg/L      **Associated sample units:** NA

**Sampling date:** 02/12/14

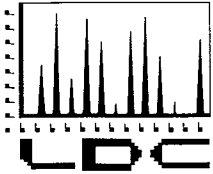
**Field blank type:** (circle one) Field Blank / Rinsate / Other: FB      Associated Samples: NA

Compound	Blank ID	Sample Identification								
	1									
G	17									

\* EMPC  
FB\_021214\_19 (280-52090-1)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the blank concentration were qualified as not detected, "U".





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 26, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

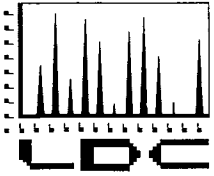
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### **LDC Project # 31419:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51905-1, 280-51958-1 280-51987-1, 280-52029-1 280-52215-1, 280-51988-1 280-52090-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, Metals, Wet Chemistry, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Chlorinated Pesticides, Polychlorinated Biphenyls, Formaldehyde, Perchlorate, Dioxins/Dibenofurans, N-Nitrosodimethylamine

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', written in a cursive style.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 10, 2014

**LDC Report Date:** March 12, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51988-1

**Sample Identification**

RS-38\_021014\_01

RD-109\_021014\_01A

RD-110\_021014\_01A

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. HRGC/HRMS Instrument Performance Check**

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

The exact mass of 380.9760 of PFK was verified.

The static resolving power was at least 10,000 (10% valley definition).

## **III. Initial Calibration**

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio for each target compound was greater than or equal to 2.5 and greater than or equal to 10 for each recovery and internal standard compound.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4048022	2/17/14	1,2,3,4,6,7,8-HpCDD OCDD OCDF	1.1 pg/L 21 pg/L 2.2 pg/L	All samples in SDG 280-51988-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RS-38_021014_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	0.84 pg/L 35 pg/L 2.8 pg/L	0.84U pg/L 35U pg/L 2.8U pg/L
RD-109_021014_01A	OCDD OCDF	31 pg/L 2.1 pg/L	31U pg/L 2.1U pg/L
RD-110_021014_01A	OCDD	14 pg/L	14U pg/L

Sample FB\_021214\_19 (from SDG 280-52090-1) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	OCDD	17 pg/L	All samples in SDG 280-51988-1

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RS-38_021014_01	OCDD	35 pg/L	35U pg/L
RD-109_021014_01A	OCDD	31 pg/L	31U pg/L
RD-110_021014_01A	OCDD	14 pg/L	14U pg/L

**VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

**VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

**VIII. Regional Quality Assurance and Quality Control**

Not applicable.

**IX. Internal Standards**

All internal standard recoveries (%R) were within QC limits.

**X. Target Compound Identifications**

All target compound identifications were within validation criteria.

**XI. Compound Quantitation**

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51988-1	All compounds reported below the RL.	J (all detects)	A

**XII. System Performance**

The system performance was acceptable.

**XIII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XIV. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51988-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51988-1	RS-38_021014_01 RD-109_021014_01A RD-110_021014_01A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51988-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51988-1	RS-38_021014_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	0.84U pg/L 35U pg/L 2.8U pg/L	A	B
280-51988-1	RD-109_021014_01A	OCDD OCDF	31U pg/L 2.1U pg/L	A	B
280-51988-1	RD-110_021014_01A	OCDD	14U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51988-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51988-1	RS-38_021014_01	OCDD	35U pg/L	A	F
280-51988-1	RD-109_021014_01A	OCDD	31U pg/L	A	F
280-51988-1	RD-110_021014_01A	OCDD	14U pg/L	A	F

LDC #: 31419D21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-10-14

SDG #: 280-51988-1/H4B140407

Level IV

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/10/14
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	≤ 20/30
IV.	Continuing calibration/ICV	A	CCV/ICV ≤ 20/30
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation RL/LOQ/LODs	A	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	SW	FB = FB-02/214-19 (280-52090-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: *water*

1	RS-38_021014_01	11		21		31	
2	RD-109_021014_01A	12		22		32	
3	RD-110_021014_01A	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	404802	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Method:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Was PFK exact mass 380.9760 verified?	/			
Were the retention time windows established for all homologues?	/			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers $\leq 25\%$ ?	/			
Is the static resolving power at least 10,000 (10% valley definition)?	/			
Was the mass resolution adequately check with PFK?	/			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	/			
<b>III. Initial calibration</b>				
Was the initial calibration performed at 5 concentration levels?	/			
Were all percent relative standard deviations (%RSD) $\leq 20\%$ for unlabeled compounds and $\leq 30\%$ for labeled compounds ?	/			
Did all calibration standards meet the Ion Abundance Ratio criteria?	/			
Was the signal to noise ratio for each target compound $\geq 2.5$ and for each recovery and internal standard $> 10$ ?	/			
<b>IV. Continuing calibration</b>				
Was a routine calibration performed at the beginning and end of each 12 hour period?	/			
Were all percent differences (%D) $\leq 20\%$ for unlabeled compounds and $\leq 30\%$ for labeled compounds ?	/			
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank performed for each matrix and concentration?			/	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	/			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			/	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?			/	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>IX. Internal standards</b>				
Were internal standard recoveries within the 40-135% criteria?	/			
Was the minimum S/N ratio of all internal standard peaks > 10?	/			
<b>X. Target compound identification</b>				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	/			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	/			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?			/	
Did compound spectra contain all characteristic ions listed in the table attached?	/			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?		/		
Was the signal to noise ratio for each target compound and labeled standard $\geq$ 2.5?	/			
Does the maximum intensity of each specified characteristic ion coincide within $\pm$ 2 seconds (includes labeled standards)?	/			
For PCDF identification, was any signal (S/N $\geq$ 2.5, at $\pm$ seconds RT) detected in the corresponding PCDF channel?		/		
Was an acceptable lock mass recorded and monitored?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.			/	
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.	/			

# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**

**Blanks**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were all samples associated with a method blank?

Y  N  N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y  N  N/A Was the method blank contaminated?

Blank extraction date: 02/17/14 Blank analysis date: 02/25/14 Associated samples: All Qual U (B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification							
		5x	1	2	3				
	4048022								
F	1.1	5.50	0.84*						
G	21	105	35	31*	14				
Q	2.2*	11.0	2.8*	2.1*					

\*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** HRGC/HRMS Dioxins/Furans (EPA SW 846 Method 8290)

**Blank units:** pg/L      **Associated sample units:** pg/L

**Sampling date:** 02/12/14

**Field blank type:** (circle one) Field Blank / Rinsate / Other: FB      Associated Samples: All Qual U (F)

Compound	Blank ID	Sample Identification							
		5x	1	2	3				
	FB_021214_19								
G	17	85	35	31*	14				

\* EMPC

FB\_021214\_19 (280-52090-1)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the blank concentration were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF =  $(A_x)(C_{is}) / (A_{is})(C_x)$   
 average RRF = sum of the RRFs/number of standards  
 %RSD =  $100 * (S/X)$

$A_x$  = Area of compound,  
 $C_x$  = Concentration of compound,  
 S = Standard deviation of the RRFs,

$A_{is}$  = Area of associated internal standard  
 $C_{is}$  = Concentration of internal standard  
 X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				Average RRF (initial)	Average RRF (initial)	RRF (CS <sub>2</sub> std)	RRF (CS <sub>2</sub> std)	%RSD	%RSD
1	ICA2	8-22-11	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.094	1.094	1.023	1.023	14.7	14.7
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	1.118	1.118	1.093	1.093	3.7	3.7
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	1.125	1.125	1.078	1.078	7.7	7.7
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)	1.110	1.110	1.093	1.093	6.2	6.25
			OCDF ( <sup>13</sup> C-OCDD)	1.422	1.422	1.362	1.362	3.6	3.6
2			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)						
			OCDF ( <sup>13</sup> C-OCDD)						
3			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)						
			OCDF ( <sup>13</sup> C-OCDD)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**VALIDATION FINDINGS WORKSHEET**  
**Routine Calibration Results Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$$

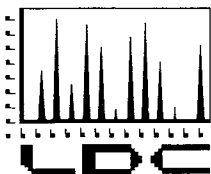
Where: ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 $A_x$  = Area of compound,  $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,  $C_{is}$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported	Recalculated	Reported	Recalculated
					RRF (CC)	RRF (CC)	%D	%D
1	b140221S1	2-21-14	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.094	1.101	1.101	0.6	0.6
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	1.118	1.165	1.165	4.2	4.2
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	1.125	1.138	1.138	1.2	1.2
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)	1.110	1.122	1.122	1.0	1.0
			OCDF ( <sup>13</sup> C-OCDD)	1.422	1.438	1.438	1.1	1.1
2	b140224S3	2-24-14	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.094	1.084	1.084	0.9	0.9
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	1.118	1.146	1.146	2.4	2.5
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	1.125	1.150	1.150	2.3	2.2
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)	1.110	1.142	1.142	2.9	2.9
			OCDF ( <sup>13</sup> C-OCDD)	1.422	1.591	1.591	11.9	11.9
3			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)					
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)					
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)					
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)					
			OCDF ( <sup>13</sup> C-OCDD)					

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.







# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 26, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

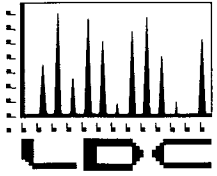
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31419:

<u>SDG #</u>	<u>Fraction</u>
280-51905-1, 280-51958-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-
280-51987-1, 280-52029-1	Trichloropropane, Metals, Wet Chemistry, Perchlorate,
280-52215-1, 280-51988-1	Total Petroleum Hydrocarbons as Gasoline, Total
280-52090-1	Petroleum Hydrocarbons as Extractables, Chlorinated Pesticides, Polychlorinated Biphenyls, Formaldehyde, Perchlorate, Dioxins/Dibenofurans, N- Nitrosodimethylamine

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 17, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52215-1

**Sample Identification**

FDP-835\_021714\_01  
TB\_FDP-835\_021714

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_FDP-835\_021714 was identified as a trip blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_FDP-835_021714	2/17/14	Acetone	7.2 ug/L	FDP-835_021714_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
FDP-835_021714_01	Acetone	2.7 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52215-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52215-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52215-1	FDP-835_021714_01 TB_FDP-835_021714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52215-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52215-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52215-1	FDP-835_021714_01	Acetone	10U ug/L	A	T

LDC #: 31419G1a

## VALIDATION COMPLETENESS WORKSHEET

Date: 3/14/14

SDG #: 280-52215-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: SV6

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/17/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	FDP-835_021714_01	11	MD 280-213746/7	21		31	
2	TB_FDP-835_021714	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31419 G12

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?  
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/17/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 1 (T)

Compound	Blank ID	Sample Identification							
	2	1							
F	7.2	2.7	10.4						

Blank units: Associated sample units:

Sampling date:

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples:

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 17, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52215-1

**Sample Identification**

FDP-835\_021714\_01  
TB\_FDP-835\_021714



## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Sample TB\_FDP-835\_021714 was identified as a trip blank. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52215-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-52215-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52215-1	FDP-835_021714_01 TB_FDP-835_021714	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-52215-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-52215-1**

No Sample Data Qualified in this SDG

LDC #: 31419G1b

## VALIDATION COMPLETENESS WORKSHEET

Date: 3/14/14

SDG #: 280-52215-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: JVG

2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/17/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS/d
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

WATER

1	FDP-835_021714_01	11	MB 250 - 213969/G	21		31	
2	TB_FDP-835_021714	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 17, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52215-1

**Sample Identification**

FDP-835\_021714\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.



## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52215-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-52215-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52215-1	FDP-835_021714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-52215-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-52215-1**

No Sample Data Qualified in this SDG

LDC #: 31419G2e

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/14/14

SDG #: 280-52215-1

Level V

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JK  
2nd Reviewer: h

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C) <sup>SW 846 Method 8270 D-SIM</sup>

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

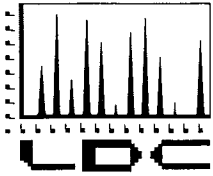
	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/17/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	N	LCS ID
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	FDP-835_021714_01	11	MB 280-213760 /-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 26, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

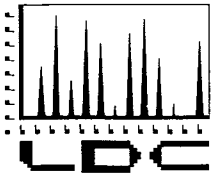
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 4, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31419:

<u>SDG #</u>	<u>Fraction</u>
280-51905-1, 280-51958-1 280-51987-1, 280-52029-1 280-52215-1, 280-51988-1 280-52090-1	Volatiles, Semivolatiles, 1,4-Dioxane, 1,2,3-Trichloropropane, Metals, Wet Chemistry, Perchlorate, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Chlorinated Pesticides, Polychlorinated Biphenyls, Formaldehyde, Perchlorate, Dioxins/Dibenofurans, N-Nitrosodimethylamine

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 11, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52029-1

### Sample Identification

RD-34A\_021114\_01  
TB\_RD-34A\_021114  
RD-34C\_021114\_01  
RD-93\_021114\_01A  
PZ-105\_021114\_01  
TB\_PZ-105\_021114  
PZ-106\_021114\_01  
RD-13\_021114\_01  
RD-13\_021114\_36  
PZ-041\_021114\_01  
PZ-120\_021114\_01  
RD-95\_021114\_01  
TB\_RD-95\_021114  
RD-34C\_021114\_01MS  
RD-34C\_021114\_01MSD  
PZ-120\_021114\_01MS  
PZ-120\_021114\_01MSD

## Introduction

This data review covers 17 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_RD-34A\_021114, TB\_PZ-105\_021114, and TB\_RD-95\_021114 were identified as trip blanks. No volatile contaminants were found.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	RD-93_021114_01A PZ-105_021114_01 PZ-106_021114_01 PZ-041_021114_01 PZ-120_021114_01 RD-95_021114_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	RD-93_021114_01A PZ-105_021114_01 PZ-106_021114_01 PZ-041_021114_01 PZ-120_021114_01 RD-95_021114_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PZ-120_021114_01	Chloroform	0.24 ug/L	1.0U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
PZ-105_021114_01	Dibromofluoromethane	120 (86-118)	All TCL compounds	J (all detects)	P
PZ-106_021114_01	Dibromofluoromethane	119 (86-118)	All TCL compounds	J (all detects)	P
PZ-120_021114_01	Dibromofluoromethane	119 (86-118)	All TCL compounds	J (all detects)	A
MB 280-213569/5	Toluene-d8 Bromofluorobenzene	113 (88-110) 130 (86-115)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
PZ-120_021114_01MS/MSD (PZ-120_021114_01)	Chloroform	-	75 (76-120)	-	J (all detects) UJ (all non-detects)	A

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52029-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

### XIV. System Performance

Raw data were not reviewed for this SDG.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

Samples RD-13\_021114\_01 and RD-13\_021114\_36 were identified as field duplicates. No volatiles were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52029-1	PZ-105_021114_01 PZ-106_021114_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-52029-1	PZ-120_021114_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-52029-1	PZ-120_021114_01	Chloroform	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-52029-1	RD-34A_021114_01 TB_RD-34A_021114 RD-34C_021114_01 RD-93_021114_01A PZ-105_021114_01 TB_PZ-105_021114 PZ-106_021114_01 RD-13_021114_01 RD-13_021114_36 PZ-041_021114_01 PZ-120_021114_01 RD-95_021114_01 TB_RD-95_021114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52029-1	PZ-120_021114_01	Chloroform	1.0U ug/L	A	T

LDC #: 31419E1a  
 SDG #: 280-52029-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/4/14  
 Page: 1 of 1  
 Reviewer: W/C  
 2nd Reviewer: DL

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/11/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW SW MD	D = 8, 9
XVII.	Field blanks	SW	*TB = 2, 6, 13      FB = FB-621214-19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB = EB-RD-07-020714  
 (280-51958-1)

Validated Samples:

*Water*

1	RD-34A_021114_01	11	PZ-120_021114_01	21	MB 280-213182/5	31
2	TB_RD-34A_021114	12	RD-95_021114_01	22	↓ - 213569/	32
3	RD-34C_021114_01	13	TB_RD-95_021114	23		33
4	RD-93_021114_01A	14	RD-34C_021114_01MS	24		34
5	PZ-105_021114_01	15	RD-34C_021114_01MSD	25		35
6	TB_PZ-105_021114	16	PZ-120_021114_01MS	26		36
7	PZ-106_021114_01	17	PZ-120_021114_01MSD	27		37
8	RD-13_021114_01	18		28		38
9	RD-13_021114_36	19		29		39
10	PZ-041_021114_01	20		30		40

*VOC's*

LDC #: 21419 E1a

### VALIDATION FINDINGS WORKSHEET

### Field Blanks

Reviewer: JVG

2nd Reviewer: AK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y / N / N/A Were field blanks identified in this SDG?

Y / N / N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/12/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: EB Associated Samples: 4 5 ~~6~~ 7 10-12 (F)

Compound	FB (2/12/14) Blank ID	EB (2/07)	Sample Identification							
	FB_021214_19	EB_RD-07_020714		11						
K	0.50			0.24 / 1.00						
F		2.0								

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT: Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Spikes**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all surrogate %R within QC limits?

Y N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications Code: <u>S</u>
		5	DFM	120 (86-118)	J det / P
		7	↓	119 ( )	↓
		11	↓	119 ( )	J det / A
		MB 280-213569/E	TOL	113 (88-110)	J det / P
			BFB	130 (86-115)	↓
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	
				( )	

QC Limits (Water)

- |                                    |        |
|------------------------------------|--------|
| SMC1 (TOL) = Toluene-d8            | 88-110 |
| SMC2 (BFB) = Bromofluorobenzene    | 86-115 |
| SMC3 (DCE) = 1,2-Dichloroethane-d4 | 80-120 |
| SMC4 (DFM) = Dibromofluoromethane  | 86-118 |

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates**

**METHOD :** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.
- Y  N  N/A Was a MS/MSD analyzed every 20 samples of each matrix?
- Y  N  N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	16 / 17	K	( )	75 (76-120)	( )	11	J / US A (6)
		S	52 (73-135)	23 (73-135)	( )	↓	No qual (spike x SA)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	< 22%	61-145%	< 14%
S.	Trichloroethene	62-137%	< 24%	71-120%	< 14%
V.	Benzene	66-142%	< 21%	76-127%	< 11%
CC.	Toluene	59-139%	< 21%	76-125%	< 13%
DD.	Chlorobenzene	60-133%	< 21%	75-130%	< 13%



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 11, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52029-1

**Sample Identification**

RD-34A\_021114\_01  
TB\_RD-34A\_021114  
RD-34C\_021114\_01  
RD-34C\_021114\_01MS  
RD-34C\_021114\_01MSD

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Sample TB\_RD-34A\_021114 was identified as a trip blank. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52029-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**1,4-Dioxane - Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52029-1	RD-34A_021114_01 TB_RD-34A_021114 RD-34C_021114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

LDC #: 31419E1b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 2/14/14

SDG #: 280-52029-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: SVB  
2nd Reviewer: A

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/11/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS 10
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*water*

1	RD-34A_021114_01	11	MB 280, 212584/5	21		31	
2	TB_RD-34A_021114	12		22		32	
3	RD-34C_021114_01	13		23		33	
4	RD-34C_021114_01MS	14		24		34	
5	RD-34C_021114_01MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** March 18, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52029-1

### Sample Identification

RD-34A_021114_01	RD-34C_021114_01MS
RD-34C_021114_01	RD-34C_021114_01MSD
RD-93_021114_01A	RD-93_021114_01AMS
PZ-105_021114_01	RD-93_021114_01AMSD
PZ-106_021114_01	RD-34C_021114_01FMS
RD-13_021114_01	RD-34C_021114_01FMSD
RD-13_021114_36	
PZ-041_021114_01	
PZ-120_021114_01	
RD-95_021114_01	
RD-34A_021114_01F	
RD-34C_021114_01F	
RD-93_021114_01AF	
PZ-105_021114_01F	
PZ-106_021114_01F	
RD-13_021114_01F	
RD-13_021114_36F	
PZ-041_021114_01F	
PZ-120_021114_01F	
RD-95_021114_01F	

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 26 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020 and 6010B for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.172 mg/L	RD-34A_021114_01F RD-34C_021114_01F
PB (prep blank)	Zinc	0.00487 mg/L	RD-34A_021114_01F RD-34C_021114_01F PZ-105_021114_01F PZ-106_021114_01F RD-13_021114_01F RD-13_021114_36F PZ-041_021114_01F PZ-120_021114_01F RD-95_021114_01F
PB (prep blank)	Barium	0.000710 mg/L	RD-34A_021114_01 RD-34C_021114_01 PZ-105_021114_01 PZ-106_021114_01 RD-13_021114_01 RD-13_021114_36 PZ-041_021114_01 PZ-120_021114_01 RD-95_021114_01
PB (prep blank)	Thallium	0.0000510 mg/L	RD-93_021114_01AF

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
PZ-105_021114_01F	Zinc	0.0060 mg/L	0.0060U mg/L
PZ-106_021114_01F	Zinc	0.0065 mg/L	0.0065U mg/L
PZ-041_021114_01F	Zinc	0.015 mg/L	0.015U mg/L
PZ-120_021114_01F	Zinc	0.013 mg/L	0.013U mg/L
RD-95_021114_01F	Zinc	0.014 mg/L	0.014U mg/L
RD-93_021114_01AF	Thallium	0.00014 mg/L	0.00014U mg/L

Samples EB\_RD-07\_020714 and EB\_RD-07\_020714F (both from SDG 280-51958-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	RD-93_021114_01A PZ-105_021114_01 PZ-106_021114_01 PZ-041_021114_01 PZ-120_021114_01 RD-95_021114_01
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	RD-93_021114_01AF PZ-105_021114_01F PZ-106_021114_01F PZ-041_021114_01F PZ-120_021114_01F RD-95_021114_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel	0.00041 mg/L	RD-93_021114_01A PZ-105_021114_01 PZ-106_021114_01 PZ-041_021114_01 PZ-120_021114_01 RD-95_021114_01

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19F	2/12/14	Nickel	0.00048 mg/L	RD-93_021114_01AF PZ-105_021114_01F PZ-106_021114_01F PZ-041_021114_01F PZ-120_021114_01F RD-95_021114_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-93_021114_01A	Antimony Copper Nickel Zinc	0.00050 mg/L 0.00079 mg/L 0.0013 mg/L 0.0056 mg/L	0.00050U mg/L 0.00079U mg/L 0.0013U mg/L 0.0056U mg/L
PZ-105_021114_01	Antimony Nickel Zinc	0.00049 mg/L 0.00052 mg/L 0.0030 mg/L	0.00049U mg/L 0.00052U mg/L 0.0030U mg/L
PZ-106_021114_01	Antimony Copper Nickel Zinc	0.00055 mg/L 0.00070 mg/L 0.00081 mg/L 0.0036 mg/L	0.00055U mg/L 0.00070U mg/L 0.00081U mg/L 0.0036U mg/L
PZ-041_021114_01	Antimony Chromium Copper Nickel	0.00044 mg/L 0.00070 mg/L 0.0014 mg/L 0.0015 mg/L	0.00044U mg/L 0.00070U mg/L 0.0014U mg/L 0.0015U mg/L
PZ-120_021114_01	Copper Zinc	0.00076 mg/L 0.0098 mg/L	0.00076U mg/L 0.0098U mg/L
RD-95_021114_01	Zinc	0.0034 mg/L	0.0034U mg/L
RD-93_021114_01AF	Antimony Nickel Zinc	0.00060 mg/L 0.0013 mg/L 0.0056 mg/L	0.00060U mg/L 0.0013U mg/L 0.0056U mg/L
PZ-105_021114_01F	Nickel Zinc	0.00078 mg/L 0.0060 mg/L	0.00078U mg/L 0.0060U mg/L
PZ-106_021114_01F	Antimony Copper Nickel Zinc	0.00056 mg/L 0.00064 mg/L 0.00094 mg/L 0.0065 mg/L	0.00056U mg/L 0.00064U mg/L 0.00094U mg/L 0.0065U mg/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
PZ-041_021114_01F	Copper Nickel	0.0012 mg/L 0.0016 mg/L	0.0012U mg/L 0.0016U mg/L
PZ-120_021114_01F	Copper Zinc	0.0012 mg/L 0.013 mg/L	0.0012U mg/L 0.013U mg/L
RD-95_021114_01F	Copper	0.00066 mg/L	0.00066U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For RD-34C\_021114\_01MS/MSD, no data were qualified for Zinc percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
RD-34C_021114_01F	Sodium	11 (≤10)	RD-34A_021114_01F RD-34C_021114_01F	J (all detects) UJ (all non-detects)	A

### XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52029-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XIII. Field Duplicates

Samples RD-13\_021114\_01 and RD-13\_021114\_36 and samples RD-13\_021114\_01F and RD-13\_021114\_36F were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01	RD-13_021114_36			
Arsenic	0.00070	0.00090	25 (≤35)	-	-
Barium	0.040	0.041	2 (≤35)	-	-
Lead	0.00029	0.00019	42 (≤35)	NQ	-
Nickel	0.00041	0.00052	24 (≤35)	-	-
Selenium	0.00077	0.0011	35 (≤35)	-	-
Vanadium	0.0016	0.0016	0 (≤35)	-	-
Zinc	0.071	0.070	1 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01F	RD-13_021114_36F			
Arsenic	0.00077	0.00072	7 (≤35)	-	-
Barium	0.042	0.043	2 (≤35)	-	-

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01F	RD-13_021114_36F			
Copper	0.00056U	0.0014	86 (≤35)	NQ	-
Lead	0.00027	0.00018U	40 (≤35)	NQ	-
Nickel	0.00051	0.00085	50 (≤35)	NQ	-
Selenium	0.0011	0.00095	15 (≤35)	-	-
Vanadium	0.0014	0.0015	7 (≤35)	-	-
Zinc	0.069	0.071	3 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52029-1	RD-34A_021114_01F RD-34C_021114_01F	Sodium	J (all detects) UJ (all non-detects)	A	ICP serial dilution (%D) (A)
280-52029-1	RD-34A_021114_01 RD-34C_021114_01 RD-93_021114_01A PZ-105_021114_01 PZ-106_021114_01 RD-13_021114_01 RD-13_021114_36 PZ-041_021114_01 PZ-120_021114_01 RD-95_021114_01 RD-34A_021114_01F RD-34C_021114_01F RD-93_021114_01AF PZ-105_021114_01F PZ-106_021114_01F RD-13_021114_01F RD-13_021114_36F PZ-041_021114_01F PZ-120_021114_01F RD-95_021114_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52029-1	PZ-105_021114_01F	Zinc	0.0060U mg/L	A	B
280-52029-1	PZ-106_021114_01F	Zinc	0.0065U mg/L	A	B
280-52029-1	PZ-041_021114_01F	Zinc	0.015U mg/L	A	B
280-52029-1	PZ-120_021114_01F	Zinc	0.013U mg/L	A	B
280-52029-1	RD-95_021114_01F	Zinc	0.014U mg/L	A	B
280-52029-1	RD-93_021114_01AF	Thallium	0.00014U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52029-1	RD-93_021114_01A	Antimony Copper Nickel Zinc	0.00050U mg/L 0.00079U mg/L 0.0013U mg/L 0.0056U mg/L	A	F
280-52029-1	PZ-105_021114_01	Antimony Nickel Zinc	0.00049U mg/L 0.00052U mg/L 0.0030U mg/L	A	F
280-52029-1	PZ-106_021114_01	Antimony Copper Nickel Zinc	0.00055U mg/L 0.00070U mg/L 0.00081U mg/L 0.0036U mg/L	A	F
280-52029-1	PZ-041_021114_01	Antimony Chromium Copper Nickel	0.00044U mg/L 0.00070U mg/L 0.0014U mg/L 0.0015U mg/L	A	F
280-52029-1	PZ-120_021114_01	Copper Zinc	0.00076U mg/L 0.0098U mg/L	A	F
280-52029-1	RD-95_021114_01	Zinc	0.0034U mg/L	A	F
280-52029-1	RD-93_021114_01AF	Antimony Nickel Zinc	0.00060U mg/L 0.0013U mg/L 0.0056U mg/L	A	F
280-52029-1	PZ-105_021114_01F	Nickel Zinc	0.00078U mg/L 0.0060U mg/L	A	F
280-52029-1	PZ-106_021114_01F	Antimony Copper Nickel Zinc	0.00056U mg/L 0.00064U mg/L 0.00094U mg/L 0.0065U mg/L	A	F
280-52029-1	PZ-041_021114_01F	Copper Nickel	0.0012U mg/L 0.0016U mg/L	A	F
280-52029-1	PZ-120_021114_01F	Copper Zinc	0.0012U mg/L 0.013U mg/L	A	F
280-52029-1	RD-95_021114_01F	Copper	0.00066U mg/L	A	F



LDC #: 31419E4

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-12-14

SDG #: 280-52029-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

QMS

Reviewer: MG

2nd Reviewer: JLG

**METHOD:** Metals (EPA SW 846 Method 6020A/7000) 6020/6010B

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD #21/22: Zn-4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC		
XI.	ICP Serial Dilution	SW	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	SW	D = 6+7 D = 16+17
XV.	Field Blanks	SW	FB = FB_021214_19 (SDG: 280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
all water

FB = FB\_021214\_19F ( )  
EB = EB\_RD-07-020714 (SDG: 280-51958-1)  
EB = EB\_RD-07-020714F ( )

1 <sup>1</sup>	RD-34A_021114_01	11 <sup>3</sup>	RD-34A_021114_01F	21 <sup>1</sup>	RD-34C_021114_01MS	31	
2 <sup>1</sup>	RD-34C_021114_01	12 <sup>3</sup>	RD-34C_021114_01F	22 <sup>1</sup>	RD-34C_021114_01MSD	32	
3 <sup>2</sup>	RD-93_021114_01A	13 <sup>4</sup>	RD-93_021114_01AF	23 <sup>2</sup>	RD-93_021114_01AMS	33	
4 <sup>1</sup>	PZ-105_021114_01	14 <sup>3</sup>	PZ-105_021114_01F	24 <sup>2</sup>	RD-93_021114_01AMSD	34	
5 <sup>1</sup>	PZ-106_021114_01	15 <sup>3</sup>	PZ-106_021114_01F	25 <sup>3</sup>	RD-34C_021114_01FMS	35	
6 <sup>1</sup>	RD-13_021114_01	16 <sup>3</sup>	RD-13_021114_01F	26 <sup>3</sup>	RD-34C_021114_01FMSD	36	
7 <sup>1</sup>	RD-13_021114_36	17 <sup>3</sup>	RD-13_021114_36F	27		37 <sup>1</sup>	PBW1
8 <sup>1</sup>	PZ-041_021114_01	18 <sup>3</sup>	PZ-041_021114_01F	28		38 <sup>2</sup>	PBW2
9 <sup>1</sup>	PZ-120_021114_01	19 <sup>3</sup>	PZ-120_021114_01F	29		39 <sup>3</sup>	PBW3
10 <sup>1</sup>	RD-95_021114_01	20 <sup>3</sup>	RD-95_021114_01F	30		40 <sup>4</sup>	PBW4

Notes: Samples appended with "F" were analyzed as dissolved



Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Na		0.172		0.860										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 11,12,14-20 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	14	15	18	19	20					
Zn		0.00487		0.0244	0.0060	0.0065	0.015	0.013	0.014					

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1,2,4-10 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Ba		0.000710		0.0036										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 13 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	13									
Tl		0.0000510		0.00026	0.00014									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N/A Were field blanks identified in this SDG?  
 N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / ~~Other~~: EB **Associated Samples:** 3-5,8-10 **Qual:** U (F)

Analyte	Blank ID	Blank ID	Sample Identification												
			Action Level	3	4	5	8	9	10						
	FB_021214_19 sampled: 2/12/14	EB_RD-07_020714 sampled: 2/7/14													
Sb		0.00044	0.0022	0.00050	0.00049	0.00055	0.00044								
Cr		0.00061	0.0030				0.00070								
Cu		0.00078	0.0039	0.00079		0.00070	0.0014	0.00076							
Ni	0.00041		0.0020	0.0013	0.00052	0.00081	0.0015								
Zn		0.0028	0.0140	0.0056	0.0030	0.0036		0.0098	0.0034						

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / ~~Other~~: EB **Associated Samples:** 13-15,18-20 **Qual:** U (F)

Analyte	Blank ID	Blank ID	Sample Identification												
			Action Level	13	14	15	18	19	20						
	FB_021214_19F sampled: 2/12/14	EB_RD-07_020714 F sampled: 2/7/14													
Sb		0.00045	0.0022	0.00060		0.00056									
Cu		0.00080	0.0040			0.00064	0.0012	0.0012	0.00066						
Ni	0.00048		0.0024	0.0013	0.00078	0.00094	0.0016								
Zn		0.0026	0.0130	0.0056	0.0060	0.0065		0.013							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".



Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	6	7		
Arsenic	0.00070	0.00090	25	
Barium	0.040	0.041	2	
Lead	0.00029	0.00019	42	No Qual.
Nickel	0.00041	0.00052	24	
Selenium	0.00077	0.0011	35	
Vanadium	0.0016	0.0016	0	
Zinc	0.071	0.070	1	

Method: Metals

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	16	17		
Arsenic	0.00077	0.00072	7	
Barium	0.042	0.043	2	
Copper	0.00056U	0.0014	86	No Qual.
Lead	0.00027	0.00018U	40	No Qual.
Nickel	0.00051	0.00085	50	No Qual.
Selenium	0.0011	0.00095	15	
Vanadium	0.0014	0.0015	7	
Zinc	0.069	0.071	3	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 11, 2014

**LDC Report Date:** March 18, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52029-1

**Sample Identification**

RD-34A\_021114\_01  
RD-34C\_021114\_01  
RD-93\_021114\_01A  
PZ-106\_021114\_01  
RD-13\_021114\_01  
RD-13\_021114\_36  
RD-34C\_021114\_01MS  
RD-34C\_021114\_01MSD  
RD-34C\_021114\_01DUP



## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate as Nitrogen.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
RD-93_021114_01A	Nitrate as N	53.75 hours	48 hours	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52029-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

Samples RD-13\_021114\_01 and RD-13\_021114\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01	RD-13_021114_36			
Fluoride	0.41	0.41	0 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52029-1	RD-93_021114_01A	Nitrate as N	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-52029-1	RD-34A_021114_01 RD-34C_021114_01 RD-93_021114_01A PZ-106_021114_01 RD-13_021114_01 RD-13_021114_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

LDC #: 31419E6

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-12-14

SDG #: 280-52029-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: MG

2nd Reviewer: JV6

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: <u>2-11-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D=5+6
XI.	Field blanks	ND	FB = FB-021214-19 (SDG: 280-52081-1) EB = EB-RD-07-020714 (SDG: 280-51958-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

all water

1	RD-34A_021114_01	11		21		31	
2	RD-34C_021114_01	12		22		32	
3	RD-93_021114_01A	13		23		33	
4	PZ-106_021114_01	14		24		34	
5	RD-13_021114_01	15		25		35	
6	RD-13_021114_36	16		26		36	
7	RD-34C_021114_01MS	17		27		37	
8	RD-34C_021114_01MSD	18		28		38	
9	# 2 DUP	19		29 <sup>1</sup>	PBW1	39	
10		20		30 <sup>2</sup>	PBW2	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





Method: Inorganics (300.0)

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Fluoride	0.41	0.41	0	



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52029-1

**Sample Identification**

RD-34A\_021114\_01  
TB\_RD-34A\_021114  
PZ-105\_021114\_01  
TB\_PZ-105\_021114

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Samples TB\_RD-34A\_021114 and TB\_PZ-105\_021114 were identified as trip blanks. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-34A_021114	2/11/14	TPH as gasoline (C6-C12)	11 ug/L	RD-34A_021114_01

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	TPH as gasoline (C6-C12)	17 ug/L	PZ-105_021114_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-34A_021114_01	TPH as gasoline (C6-C12)	11 ug/L	11U ug/L

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52029-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## **XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples PZ-105\_021114\_01 and PZ-105\_021114\_03 (from SDG 14B059) were identified as split samples. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52029-1	RD-34A_021114_01 TB_RD-34A_021114 PZ-105_021114_01 TB_PZ-105_021114	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52029-1	RD-34A_021114_01	TPH as gasoline (C6-C12)	11U ug/L	A	T

LDC #: 31419E7  
 SDG #: 280-52029-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JTB  
 2nd Reviewer: A

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/11/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1D
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	S = 3+ PZ-105_021114_03 (14B059)
XIII.	Field blanks	SW	TB = 2, * 4 FB = FB_021214_19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank  
 EB = EB\_RD-07\_020714 (280-51958-1)

Validated Samples:

Water

1	RD-34A_021114_01	11	MB 280-213102/4	21		31
2	TB_RD-34A_021114	12		22		32
3	PZ-105_021114_01	13		23		33
4	TB_PZ-105_021114	14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 3/4/19 E7

# VALIDATION FINDINGS WORKSHEET

## Field Blanks

Page: 1 of 1

Reviewer: SLG

2nd Reviewer: U

METHOD:  GC  HPLC

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/07/14

Field blank type: (circle one) Field Blank / Trip Blank / Atmospheric Blank / Ambient Blank  
Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other:

Associated Samples: 3 (N/A)

Compound	Blank ID	Blank ID	Sample Identification							
	EB-RD-07-020714									
C <sub>6</sub> -G <sub>2</sub>	17									
CRQL										

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/11/14

Field blank type: (circle one) Field Blank / Trip Blank / Atmospheric Blank / Ambient Blank  
Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other:

Associated Samples: 1

Compound	Blank ID	Blank ID	Sample Identification							
	2									
C <sub>6</sub> -G <sub>2</sub>	11		11/4							
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52029-1

**Sample Identification**

RD-34A\_021114\_01  
PZ-105\_021114\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as extractable contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52029-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-52029-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52029-1	RD-34A_021114_01 PZ-105_021114_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

LDC #: 31419E8  
 SDG #: 280-52029-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer: AL

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/11/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1p
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	FB = <u>FB_0 21214_19 (280-52081-1)</u> EB = <u>EB_RD-07_020714 (280-51958-1)</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

WATER

1	RD-34A_021114_01	11	MB 280-212706/1-18	21		31
2	PZ-105_021114_01	12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 11, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52029-1

**Sample Identification**

RD-93\_021114\_01A

## Introduction

This data review covers one water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No perchlorate was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No perchlorate was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52029-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. System Performance**

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-52029-1**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-52029-1	RD-93_021114_01A	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/11/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	Not req'd.
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS / b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	FB = FB_021214_19 (280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

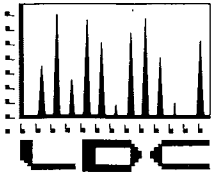
ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

EB = EB-RD-07-D20714 (280-51958-1)  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-93_021114_01A	11	MB 280-213695/14	21	31
2		12		22	32
3		13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 7, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

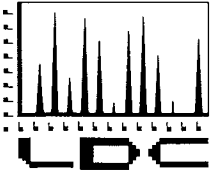
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project #31421:

<u>SDG #</u>	<u>Fraction</u>
14A094A/BSS15	N-Nitrodimethylamine, Dioxins/Dibenzofurans, Hexachlorophene, Formaldehyde, Hydrazines, Gamma Spectroscopy, Alpha Spectroscopy
14A148A/BSS16	
14B051/342836	
14B059A/343031	
14B067A/343033	
14B082/343032	

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008



- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 21, 2014  
**LDC Report Date:** March 18, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./  
Eurofins Lancaster Laboratories

**Sample Delivery Group (SDG):** 14A094A/BSS15

### Sample Identification

RD-67\_012114\_03



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

### XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A094A/BSS15	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XIII. System Performance

Raw data were not reviewed for this SDG.

### XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

### XV. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-67\_012114\_03 and RD-67\_012114\_01 (from SDG 280-51368-1) were identified as split samples. No N-nitrosodimethylamine was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-67_012114_03	RD-67_012114_01			
N-Nitrosodimethylamine	0.00117	0.0050U	124 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 14A094A/BSS15**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A094A/ BSS15	RD-67_012114_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG  
14A094A/BSS15**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG  
14A094A/BSS15**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 10
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates (split)	SW	5 = 1 + RD-67-012114-01 (250-51368-1)
XVII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

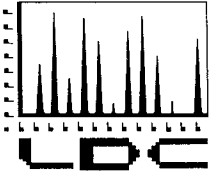
Water

1	RD-67_012114_03	11	SBLKNA028	21		31
2		12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

**VALIDATION FINDINGS WORKSHEET**  
**Field Splits**

Method: GCMS NDMA (EPA Method 1625C)

Analyte	Concentration (ug/L)		RPD (≤35%)	Qualifications (Parent only)
	RD-67_012114_01	RD-67_012114_03		
NDMA	0.0050U	0.00117	124	NQ (<5xRL)



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 11, 2014

SUBJECT: Revised Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the revised validation report for the fraction listed below. Please replace the previously submitted report with the enclosed revised report.

**LDC Project # 31421:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14A094A/BSS15	N-Nitrosodimethylamine

- **Revised results for RD-67-012114.03**

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc./  
Eurofins Lancaster Laboratories

**Sample Delivery Group (SDG):** 14A094A/BSS15

**Sample Identification**

RD-67\_012114\_03



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A094A/BSS15	All compounds reported below the RL	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-67\_012114\_03 and RD-67\_012114\_01 (from SDG 280-51368-1) were identified as split samples. No N-nitrosodimethylamine was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 14A094A/BSS15**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A094A/ BSS15	RD-67_012114_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG  
14A094A/BSS15**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG  
14A094A/BSS15**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

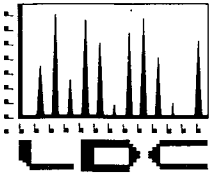
Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 10
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates (split)	JVG SW ND	5 = 1 + RD-67_012114_01 (250-51368-1)
XVII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Water

1	RD-67_012114_03	11	SBLKN A 028	21	31
2		12		22	32
3		13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 7, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

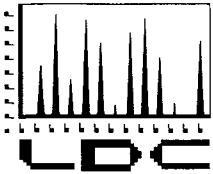
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31421:

<u>SDG #</u>	<u>Fraction</u>
14A094A/BSS15	N-Nitrodimethylamine, Dioxins/Dibenzofurans, Hexachlorophene, Formaldehyde, Hydrazines, Gamma Spectroscopy, Alpha Spectroscopy
14A148A/BSS16	
14B051/342836	
14B059A/343031	
14B067A/343033	
14B082/343032	

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008



- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31421 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	NDNA (1625C)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		1,1-DMH (DVWC 0077)		Hydrazine (DVWC)		MMH (DVWC 0077)		Gamma Spec. (901.1)		Diss. Gamma Spec.																		
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S			
Matrix: Water/Soil																																						
A	14A094A/BSS15	03/03/14	03/24/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-															
B	14A148A/BSS16	03/03/14	03/24/14	1	0	1	0	1	0	1	0	1	0	1	0	1	0	-	-	-	-																	
C	14B051/342836	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0																	
D	14B059A/343031	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0																	
E	14B067A/343033	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	2	0																	
F	14B082/343032	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0																	
Total				2	0	1	0	1	0	1	0	1	0	1	0	1	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** April 7, 2014  
**Matrix:** Water  
**Parameters:** N-Nitrosodimethylamine  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./  
Eurofins Lancaster Laboratories

**Sample Delivery Group (SDG):** 14A148A/BSS16

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
SBLKWA035	2/4/14	N-Nitrosodimethylamine	1.43 ng/L	All samples in SDG 14A148A/BSS16

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

**VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

**IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148A/BSS16	All compounds reported below the RL	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. System Performance**

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No N-nitrosodimethylamine was detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
N-Nitrosodimethylamine	9.876	8.5	15 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 14A148A/BSS16**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148/ BSS16	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates / Split	SW	S = 1, HAR-16-012914-01 (280-57632-1)
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	HAR-16_012914_03	11	<del>FB LKWA</del> SBLKWA03S	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 31421 B2e

# VALIDATION FINDINGS WORKSHEET

## Blanks

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: [Signature]

METHOD: GC/MS <sup>NDMA</sup> ~~BNA~~ (EPA SW <sup>Method 1625C</sup> ~~846~~ Method ~~8270G~~)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a method blank analyzed for each matrix?
- N N/A Was a method blank analyzed for each concentration preparation level?
- N N/A Was a method blank associated with every sample?
- N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 2/02/14 Blank analysis date: 2/12/14

Conc. units: ng/L Associated Samples: All

Compound	Blank ID	(75X)							
	SBLKWA035								
NDMA	1.43								

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".



LDC #: 31421 Bze  
31418

**VALIDATION FINDINGS WORKSHEET**  
**Field Splits**

Page: 1 of 1  
 Reviewer: JVG  
 2nd reviewer: [Signature]

**METHOD:** GC/MS SVOA (EPA SW 846 Method 8270D-SIM)/1625C

Y N N/A Were field split pairs identified in this SDG?  
Y N N/A Were target compounds detected in the field split pairs?

Compound	Concentration ( ug/L )		RPD ( ≤ 35 % )	Qualifications (Parent only)
	1	HAR-16-012914-01		
ND MA	9.876	8.5	15	

Compound	Concentration ( )		RPD ( ≤ 35 % )	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( ≤ 35 % )	Qualifications (Parent only)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** March 12, 2014  
**Matrix:** Water  
**Parameters:** Dioxins/Dibenzofurans  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./  
Eurofins Lancaster Laboratories  
**Sample Delivery Group (SDG):** 14A148A/BSS16

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. HRGC/HRMS Instrument Performance Check**

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

The exact mass of 380.9760 of PFK was verified.

The static resolving power was at least 10,000 (10% valley definition).

## **III. Initial Calibration**

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio for each target compound was greater than or equal to 2.5 and greater than or equal to 10 for each recovery and internal standard compound.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BLK035002	2/4/14	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF OCDF	0.570 pg/L 0.528 pg/L 0.389 pg/L 0.745 pg/L 3.58 pg/L 0.691 pg/L 0.720 pg/L 0.568 pg/L 0.318 pg/L 0.317 pg/L 0.366 pg/L 0.601 pg/L 1.44 pg/L	All samples in SDG 14A148A/BSS16

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-16_012914_03	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF OCDF	1.55 pg/L 0.521 pg/L 1.72 pg/L 0.745 pg/L 1.34 pg/L 0.987 pg/L 0.470 pg/L 0.301 pg/L 1.05 pg/L 1.63 pg/L 0.799 pg/L 1.54 pg/L	1.55U pg/L 0.521U pg/L 1.72U pg/L 0.745U pg/L 1.34U pg/L 0.987U pg/L 0.470U pg/L 0.301U pg/L 1.05U pg/L 1.63U pg/L 0.799U pg/L 1.54U pg/L

No field blanks were identified in this SDG.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Regional Quality Assurance and Quality Control

Not applicable.

### IX. Internal Standards

All internal standard recoveries (%R) were within QC limits.

### X. Target Compound Identifications

All target compound identifications were within validation criteria.

### XI. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148A/BSS16	All compounds reported below the RL.	J (all detects)	A

### XII. System Performance

The system performance was acceptable.

### XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XIV. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51633-1) were identified as split samples. No polychlorinated dioxin/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
2,3,7,8-TCDD	1.10	2.2U	67 (≤35)	NQ	-
1,2,3,7,8-PeCDD	1.55	1.2U	25 (≤35)	-	-
1,2,3,4,7,8-HxCDD	0.521	1.0U	63 (≤35)	NQ	-
1,2,3,6,7,8-HxCDD	1.72	1.1U	44 (≤35)	NQ	-
1,2,3,4,6,7,8-HpCDD	0.745	0.94U	23 (≤35)	-	-

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
OCDD	1.34	2.8	71 (≤35)	NQ	-
1,2,3,7,8-PeCDF	0.987	0.89U	10 (≤35)	-	-
2,3,4,7,8-PeCDF	0.470	0.8U	52 (≤35)	NQ	-
1,2,3,4,7,8-HxCDF	0.301	0.48U	46 (≤35)	NQ	-
1,2,3,6,7,8-HxCDF	0.666	0.5U	28 (≤35)	-	-
2,3,4,6,7,8-HxCDF	1.05	0.46U	78 (≤35)	NQ	-
1,2,3,7,8,9-HxCDF	1.63	0.56U	98 (≤35)	NQ	-
1,2,3,4,6,7,8-HpCDF	0.799	0.67U	18 (≤35)	-	-
1,2,3,4,7,8,9-HpCDF	0.900	0.84U	7 (≤35)	-	-
OCDF	1.54	1.4	10 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 14A148A/BSS16**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148A/ BSS16	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 14A148A/BSS16**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
14A148A/ BSS16	HAR-16_012914_03	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF OCDF	1.55U pg/L 0.521U pg/L 1.72U pg/L 0.745U pg/L 1.34U pg/L 0.987U pg/L 0.470U pg/L 0.301U pg/L 1.05U pg/L 1.63U pg/L 0.799U pg/L 1.54U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG



LDC #: 31421B21  
 SDG #: 14A148A/BSS16  
 Laboratory: EMAX Laboratories, Inc./Eurofins Lancaster Laboratories

**VALIDATION COMPLETENESS WORKSHEET**

Level IV

Date: 3-10-14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	≤ 20/30
IV.	Continuing calibration/ <del>CV</del>	A	≤ 20/30
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	
VII.	Laboratory control samples	A	OPR
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation RL/LOQ/LODs*	A	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	S=1+HAR-16-012914-01(280-5633-1)
XV.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	HAR-16_012914_03	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	BLK 035002	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Method:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Was PFK exact mass 380.9760 verified?	/			
Were the retention time windows established for all homologues?	/			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers < 25% ?	/			
Is the static resolving power at least 10,000 (10% valley definition)?	/			
Was the mass resolution adequately check with PFK?	/			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	/			
<b>III. Initial calibration</b>				
Was the initial calibration performed at 5 concentration levels?	/			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and < 30% for labeled compounds ?	/			
Did all calibration standards meet the Ion Abundance Ratio criteria?	/			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard > 10?	/			
<b>IV. Continuing calibration</b>				
Was a routine calibration performed at the beginning and end of each 12 hour period?	/			
Were all percent differences (%D) ≤ 20% for unlabeled compounds and ≤ 30% for labeled compounds ?	/			
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank performed for each matrix and concentration?			/	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	/			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			/	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?			/	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>IX. Internal standards</b>				
Were internal standard recoveries within the 40-135% criteria?	/			
Was the minimum S/N ratio of all internal standard peaks > 10?	/			
<b>X. Target compound identification</b>				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	/			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	/			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?			/	
Did compound spectra contain all characteristic ions listed in the table attached?	/			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?		/		
Was the signal to noise ratio for each target compound and labeled standard $\geq$ 2.5?	/			
Does the maximum intensity of each specified characteristic ion coincide within $\pm$ 2 seconds (includes labeled standards)?	/			
For PCDF identification, was any signal ( $S/N \geq 2.5$ , at $\pm$ seconds RT) detected in the corresponding PCDPE channel?		/		
Was an acceptable lock mass recorded and monitored?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.	/			
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.			/	
Target compounds were detected in the field blanks.			/	

# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were all samples associated with a method blank?

Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y N N/A Was the method blank contaminated?

**Blank extraction date:** 02/04/14 **Blank analysis date:** 02/05/14 **Associated samples:** All Qual U (B)

**Conc. units:** pg/L

Compound	Blank ID	Sample Identification							
		5x	1						
	BLK035002								
B	0.570*	2.85	1.55						
C	0.528*	2.64	0.521*						
D	0.389*	1.95	1.72*						
F	0.745*	3.73	0.745*						
G	3.58*	17.9	1.34						
H	0.691*	3.46							
I	0.720*	3.60	0.987*						
J	0.568*	2.84	0.470*						
K	0.318*	1.59	0.301*						
M	0.317*	1.59	1.05*						
N	0.366*	1.83	1.63*						
O	0.601	3.01	0.799*						
Q	1.44*	7.20	1.54						

\*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
Field Duplicates

Method: HRGC/HRMS (EPA SW 846 Method 8290)

Analyte	Concentration (pg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	1	HAR-16_012914_01		
A	1.10	2.2U	67	NQ
B	1.55	1.2U	25	
C	0.521	1.0U	63	NQ
D	1.72	1.1U	44	NQ
F	0.745	0.94U	23	
G	1.34	2.8	71	NQ
I	0.987	0.89U	10	
J	0.470	0.8U	52	NQ
K	0.301	0.48U	46	NQ
L	0.666	0.5U	28	
M	1.05	0.46U	78	NQ
N	1.63	0.56U	98	NQ
O	0.799	0.67U	18	
P	0.900	0.84U	7	
Q	1.54	1.4	10	

NQ=conc <5x RL

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

$\%RSD = 100 * (S/X)$

$A_x$  = Area of compound,

$C_x$  = Concentration of compound,

S = Standard deviation of the RRFs,

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				Average RRF (initial)	Average RRF (initial)	RRF (CS3 std)	RRF (CS3 std)	%RSD	%RSD
1	ICAL	09/22/2013	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.008	1.008	1.043	1.043	4.15	4.14
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	1.109	1.109	1.125	1.125	1.62	1.60
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	0.949	0.949	0.995	0.995	4.48	4.48
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)	1.056	1.056	1.079	1.079	1.66	1.66
			OCDF ( <sup>13</sup> C-OCDF)	0.963	0.963	0.998	0.998	2.75	2.75
2			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)						
			OCDF ( <sup>13</sup> C-OCDF)						
3			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)						
			OCDF ( <sup>13</sup> C-OCDF)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Routine Calibration Results Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 $A_x$  = Area of compound,  $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,  $C_{is}$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported	Recalculated	Reported	Recalculated
					RRF (CC)	RRF (CC)	%D	%D
1	<u>CS30004</u>	<u>2-5-14</u>	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	<u>1.008</u>	<u>0.951</u>	<u>0.9505</u>	<u>5.68</u>	<u>5.71</u>
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	<u>1.109</u>	<u>1.054</u>	<u>1.054</u>	<u>4.95</u>	<u>4.92</u>
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	<u>0.949</u>	<u>0.936</u>	<u>0.936</u>	<u>1.35</u>	<u>1.35</u>
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)	<u>1.056</u>	<u>1.017</u>	<u>1.017</u>	<u>3.70</u>	<u>3.72</u>
			OCDF ( <sup>13</sup> C-OCDD)	<u>0.963</u>	<u>0.936</u>	<u>0.936</u>	<u>2.82</u>	<u>2.78</u>
2			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)					
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)					
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)					
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)					
			OCDF ( <sup>13</sup> C-OCDD)					
3			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)					
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)					
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)					
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8,-HpCDD)					
			OCDF ( <sup>13</sup> C-OCDD)					

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





**VALIDATION FINDINGS WORKSHEET**  
Sample Calculation Verification

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

- N N/A Were all reported results recalculated and verified for all level IV samples?
- N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$$

- A<sub>x</sub> = Area of the characteristic ion (EICP) for the compound to be measured
- A<sub>is</sub> = Area of the characteristic ion (EICP) for the specific internal standard
- I<sub>s</sub> = Amount of internal standard added in nanograms (ng)
- V<sub>o</sub> = Volume or weight of sample extract in milliliters (ml) or grams (g).
- RRF = Relative Response Factor (average) from the initial calibration
- Df = Dilution Factor.
- %S = Percent solids, applicable to soil and solid matrices only.

Example:

Sample I.D. 1, Q:

$$\begin{aligned} \text{Conc.} &= \frac{(228+197)(4000)(1)}{(593524+)(0.963)(1.009)} \\ &= 1.54 \mu\text{g/L} \end{aligned}$$

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** April 7, 2014  
**Matrix:** Water  
**Parameters:** Hexachlorophene  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./  
Eurofins Lancaster Laboratories

**Sample Delivery Group (SDG):** 14A148A/BSS16

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Hexachlorophene.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No hexachlorophene was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148A/BSS16	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No hexachlorophene was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Data Qualification Summary - SDG 14A148A/BSS16**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148/ BSS16	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Laboratory Blank Data Qualification Summary - SDG  
14A148A/BSS16**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hexachlorophene - Field Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG

LDC #: 31421B44

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/06/14

SDG #: 14A148/BSS16

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc./Eurofins Lancaster Laboratories

Reviewer: JG

2nd Reviewer:

**METHOD:** LC/MS Hexachlorophene (EPA SW 846 Method 8321A) <sup>8151A</sup>

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS 1b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	NA	
XVI.	Field duplicates / Split	ND	S = 1, HAR-16_012914_01 (280-51632-1)
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	PBLK 02035	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** April 7, 2014  
**Matrix:** Water  
**Parameters:** Formaldehyde  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./  
Eurofins Lancaster Laboratories

**Sample Delivery Group (SDG):** 14A148A/BSS16

**Sample Identification**

HAR-16\_012914\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
All samples in SDG 14A148A/BSS16	Formaldehyde	6	3	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were not required by the method.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

### IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148A/BSS16	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. System Performance

Raw data were not reviewed for this SDG.

### XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XII. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No formaldehyde was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 14A148A/BSS16**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148/ BSS16	HAR-16_012914_03	Formaldehyde	J (all detects) UJ (all non-detects)	A	Technical holding time (H)
14A148/ BSS16	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: <u>1/29/14</u>
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	<del>A</del> N	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	S = 1, HAR-16-012914-01 (280-51632-1)
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Noted*

1	HAR-16_012914_03	11	PBCK 10031	21		31
2		12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 29, 2014  
**LDC Report Date:** April 7, 2014  
**Matrix:** Water  
**Parameters:** Hydrazines  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./  
Eurofins Lancaster Laboratories

**Sample Delivery Group (SDG):** 14A148A/BSS16

**Sample Identification**

HAR-16\_012914\_03  
HAR-16\_012914\_03MS  
HAR-16\_012914\_03MSD



## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Hydrazines.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No hydrazine contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were not required by the method.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
HAR-16_012914_03MS/MSD (HAR-16_012914_03)	Methyl hydrazine	4 (61-138)	3 (61-138)	-	J (all detects) UJ (all non-detects)	A

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A148A/BSS16	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

Samples HAR-16\_012914\_03 and HAR-16\_012914\_01 (from SDG 280-51632-1) were identified as split samples. No hydrazines were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_03	HAR-16_012914_01			
Hydrazine	0.18	5.0U	186 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Data Qualification Summary - SDG 14A148A/BSS16**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A148A/BSS16	HAR-16_012914_03	Methyl hydrazine	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)(Q)
14A148A/BSS16	HAR-16_012914_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Laboratory Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Hydrazines - Field Blank Data Qualification Summary - SDG 14A148A/BSS16**

No Sample Data Qualified in this SDG

LDC #: 31421B76 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 14A148/BSS16 Level V  
 Laboratory: EMAX Laboratories, Inc./Eurofins Lancaster Laboratories

Date: 3/06/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: J

METHOD: LC/MS/MS HPLC-Hydrazines (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	N	
VI.	Matrix spike/Matrix spike duplicates	SW	ES
VII.	Laboratory control samples	A	LCS B
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates (Split)	SW	S = 1 + HAR-16-012914-01 (280-51632-1)
XIII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

Water

1	HAR-16_012914_03	11	14034001 Blk	21		31	
2	1 MS	12		22		32	
3	1 MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





LDC #: 31421 B76

### VALIDATION FINDINGS WORKSHEET Field Duplicates

Page: 1 of 1

Reviewer: JVG

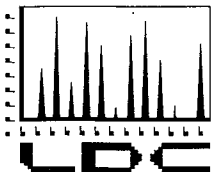
2nd reviewer: *[Signature]*

METHOD: GC HPLC  LC/MS/MS  
 N/A Were field duplicate pairs identified in this SDG?  
 N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration ( ug / L )		%RPD Limit: ( ≤ 35 % )	Qualification <u>Parent only</u> / All Samples
	1	HAR-16_012914_01		
A	0.18	5.04	186	NQ ( < 5 x RL )

Compound	Concentration ( )		%RPD Limit: ( ≤ % )	Qualification Parent only / All Samples





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 7, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

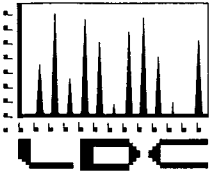
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project #31421:

<u>SDG #</u>	<u>Fraction</u>
14A094A/BSS15	N-Nitrodimethylamine, Dioxins/Dibenzofurans, Hexachlorophene, Formaldehyde, Hydrazines, Gamma Spectroscopy, Alpha Spectroscopy
14A148A/BSS16	
14B051/342836	
14B059A/343031	
14B067A/343033	
14B082/343032	

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008



- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive, flowing style.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** March 14, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B059A/343031

**Sample Identification**

PZ-105\_021114\_03SUS  
PZ-105\_021114\_03DIS  
PZ-105\_021114\_03DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714SUS, EB\_RD-07\_020714DIS (both from SDG 280-51959-1/14-02037-OR), EB\_RD-90\_021214SUS, and EB\_RD-90\_021214DIS (both from SDG 280-52126/14-02066-OR) were identified as equipment blanks. No gamma emitting radionuclides were found.

Samples FB\_021214\_19SUS and FB\_021214\_19DIS (both from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gamma emitting radionuclides were found.

## **V. Matrix Spike/Matrix Spike Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B059A/343031	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples PZ-105\_021114\_03SUS and PZ-105\_021114\_01SUS (from SDG 280-52030-1/14-02056-OR) and samples PZ-105\_021114\_03DIS and PZ-105\_021114\_01DIS (from SDG 280-52030-1/14-02056-OR) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Data Qualification Summary - SDG 14B059A/343031**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B059A/ 343031	PZ-105_021114_03SUS PZ-105_021114_03DIS PZ-105_021114_03DISDUP	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG  
14B059A/343031**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG  
14B059A/343031**

No Sample Data Qualified in this SDG



**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	SDG: 280-52030-1 / 14-02056-OR 5
IX.	Overall assessment of data	A	split = 1 + PZ-105_021114_01SUS } split = 2 + PZ-105_021114_01DIS }
X.	Field duplicates	ND	EB = EB_RD-07_020714_01SUS } SDG: 280-51959-1/
XI.	Field blanks	ND	EB = EB_RD-07_020714_01DIS } 14-02037-OR

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

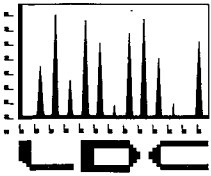
EB = EB\_RD-90\_021214\_01SUS } SDG: 280-52126/  
EB = EB\_RD-90\_021214 DIS } 14-02066-0

1	PZ-105_021114_03SUS	11		21		31	
2	PZ-105_021114_03F DIS	12		22		32	
3	PZ-105_021114_03DIS DIS 03DUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: Samples appended with "F" were analyzed as dissolved

"SUS" is particulate

FB = FB\_021214\_19SUS } SDG: 280-52126-1/  
FB = FB\_021214\_19DIS } 14-02067-OR



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 7, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

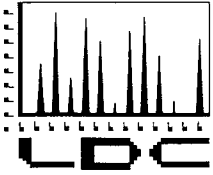
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project #31421:

<u>SDG #</u>	<u>Fraction</u>
14A094A/BSS15	N-Nitrodimethylamine, Dioxins/Dibenzofurans, Hexachlorophene, Formaldehyde, Hydrazines, Gamma Spectroscopy, Alpha Spectroscopy
14A148A/BSS16	
14B051/342836	
14B059A/343031	
14B067A/343033	
14B082/343032	

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008



- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** March 14, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B067A/343033

### Sample Identification

RD-57\_021214\_03SUS  
RD-57\_021214\_03DIS

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 2 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

**I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

**II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

**III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

**IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

**V. Matrix Spike/Matrix Spike Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

**VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

**VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

**VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B067A/343033	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-57\_021214\_03SUS and RD-57\_021214\_01SUS (from SDG 280-52126-1/14-02067-OR) and samples RD-57\_021214\_03DIS and RD-57\_021214\_01DIS (from SDG 280-52126-1/14-02067-OR) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Data Qualification Summary - SDG 14B067A/343033**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B067A/ 343033	RD-57_021214_03SUS RD-57_021214_03DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG  
14B067A/343033**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG  
14B067A/343033**

No Sample Data Qualified in this SDG

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP (SDG: 343031)
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	SDG: 280-52126-1 / 14-02067-OR
IX.	Overall assessment of data <i>gms</i>	<del>A</del>	$\left. \begin{array}{l} \text{split} = 1 + \text{RD-57-021214-01SUS} \\ \text{split} = 2 + \text{RD-57-021214-01DIS} \end{array} \right\}$
X.	Field duplicates	ND	
XI.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:  
*all water*

1	RD-57_021214_03 SUS	11		21		31	
2	RD-57_021214_03 <sup>dis</sup> dis	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: <sup>dis</sup> Samples appended with "F" were analyzed as dissolved

Sample #1 is "particulate" result

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** March 14, 2014  
**Matrix:** Water  
**Parameters:** Alpha Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B067A/343033

**Sample Identification**

RD-54B\_021214\_03SUS  
RD-54B\_021214\_03DIS  
RD-54B\_021214\_03DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per DOE EML HASL-300 and Pu-11-RC modified for Alpha Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B067A/343033	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-54B\_021214\_03SUS and RD-54B\_021214\_01SUS (from SDG 280-52126-1/14-02066-OR) and samples RD-54B\_021214\_03DIS and RD-54B\_021214\_01DIS (from SDG 280-52126-1/14-02066-OR) were identified as split samples. No alpha emitting radionuclides were detected in any of the samples.

## **XI. Tracer Recovery**

Tracer recoveries (%R) were within QC limits.

**Boeing SSFL GW 1st Qtr 2014  
Alpha Spectroscopy - Data Qualification Summary - SDG 14B067A/343033**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B067A/ 343033	RD-54B_021214_03SUS RD-54B_021214_03DIS RD-54B_021214_03DISDUP	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Alpha Spectroscopy - Laboratory Blank Data Qualification Summary - SDG  
14B067A/343033**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Alpha Spectroscopy - Field Blank Data Qualification Summary - SDG  
14B067A/343033**

No Sample Data Qualified in this SDG

**METHOD:** Alpha Spectroscopy (DOE EML HASL-300, Pu-11-RC Modified )

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	SDG: 280-52126-1 / 14-02066-OR
IX.	Overall assessment of data	A	{split = 1 + RD-54B-021214-01 <sup>SUS</sup> }
X.	Field duplicates	ND	{split = 2 + RD-54B-021214-01 <sup>PIS</sup> }
XI.	Field blanks	N	
XII.	Tracer	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

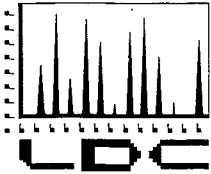
Validated Samples:  
 all water

1	RD-54B_021214_03 SUS	11		21		31	
2	RD-54B_021214_03 <sup>dis</sup>	12		22		32	
3	RD-57 <sup>4B</sup> _021214_03 <sup>dis</sup> DUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: Samples appended with "F"<sup>dis</sup> were analyzed as dissolved

Sample #1 is "particulate" result





## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 7, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

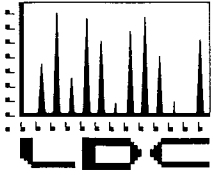
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31421:

<u>SDG #</u>	<u>Fraction</u>
14A094A/BSS15	N-Nitrodimethylamine, Dioxins/Dibenzofurans, Hexachlorophene, Formaldehyde, Hydrazines, Gamma Spectroscopy, Alpha Spectroscopy
14A148A/BSS16	
14B051/342836	
14B059A/343031	
14B067A/343033	
14B082/343032	

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008



- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 14, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B051/342836

**Sample Identification**

RD-17\_021014\_03SUS  
RD-17\_021014\_03DIS  
RD-17\_021014\_03DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All sample result verification met validation criteria with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-17_021014_03DIS	Thulium-171	The isotope was reported from the "Non-Identified Nuclides" report from a pseudo calculation.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B051/342836	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-17\_021014\_03SUS and RD-17\_021014\_01SUS (from SDG 280-51989-1/14-02054) and samples RD-17\_021014\_03DIS and RD-17\_021014\_01DIS (from SDG 280-51989-1/14-02054) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Data Qualification Summary - SDG 14B051/342836**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B051/ 342836	RD-17_021014_03DIS	Thulium-171	R	A	Sample result verification (VIII)
14B051/ 342836	RD-17_021014_03SUS RD-17_021014_03DIS RD-17_021014_03DISDUP	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 14B051/342836**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 14B051/342836**

No Sample Data Qualified in this SDG



**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-10-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	SWX	SUS
IX.	Overall assessment of data	ASW	{ split = 1 + RD-17-021014-01' } DIS
X.	Field duplicates	ND	{ split = 2 + RD-17-021014-01F }
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank  
SDG: 280-51989-1/14-02052

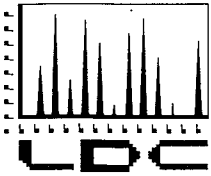
Validated Samples:  
All water

1	RD-17_021014_03	SUS	11		21		31
2	RD-17_021014_03	DIS	12		22		32
3	RD-17_021014_03	DIS DUP	13		23		33
4			14		24		34
5			15		25		35
6			16		26		36
7			17		27		37
8			18		28		38
9			19		29		39
10			20	PBW	30		40

Notes: Samples appended with "D" were analyzed as dissolved

~~Sample 1 is~~ SUS = "particulate" results





## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 7, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

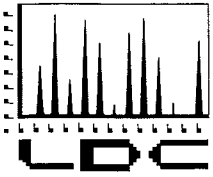
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31421:

<u>SDG #</u>	<u>Fraction</u>
14A094A/BSS15	N-Nitrodimethylamine, Dioxins/Dibenzofurans, Hexachlorophene, Formaldehyde, Hydrazines, Gamma Spectroscopy, Alpha Spectroscopy
14A148A/BSS16	
14B051/342836	
14B059A/343031	
14B067A/343033	
14B082/343032	

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008



- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31421 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	NDNA (1625C)		Dioxins (8290)		HCP (8321A)		Formaldehyde (8315A)		1,1-DMH (DVWC 0077)		Hydrazine (DVWC)		MMH (DVWC 0077)		Gamma Spec. (901.1)		Diss. Gamma Spec.																		
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S			
Matrix: Water/Soil																																						
A	14A094A/BSS15	03/03/14	03/24/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																	
B	14A148A/BSS16	03/03/14	03/24/14	1	0	1	0	1	0	1	0	1	0	1	0	1	0	-	-	-	-																	
C	14B051/342836	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0																	
D	14B059A/343031	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0																	
E	14B067A/343033	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	2	0																	
F	14B082/343032	03/03/14	03/24/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0																	
Total				2	0	1	0	1	0	1	0	1	0	1	0	1	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** March 14, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B082/343032

**Sample Identification**

RD-24\_021314\_03SUS  
RD-24\_021314\_03DIS

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 2 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B082/343032	All isotopes reported below the RL and above the MDA.	J (all detects)	A



Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-24\_021314\_03SUS and RD-24\_021314\_01SUS (from SDG 280-52128-1/14-02062) and samples RD-24\_021314\_03DIS and RD-24\_021314\_01DIS (from SDG 280-52128-1/14-02062) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Data Qualification Summary - SDG 14B082/343032**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B082/ 343032	RD-24_021314_03SUS RD-24_021314_03DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG  
14B082/343032**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG  
14B082/343032**

No Sample Data Qualified in this SDG

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-13-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP (SDG: 343031)
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	SDG: 280-52128-1 / 14-02062-OR ←
IX.	Overall assessment of data	A	{ split = 1 + RD-24_021314_01SUS }
X.	Field duplicates	ND	{ split = 2 + RD-24_021314_01DIS }
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

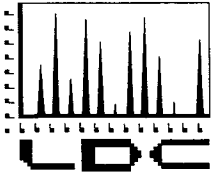
Validated Samples:

all water

1	RD-24_021314_03 SUS	11		21		31	
2	RD-24_021314_03Fdis	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: Samples appended with "F"<sup>dis</sup> were analyzed as dissolved

sample 1 is "particulate" result



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 24, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the final validation report for the fractions listed below. This SDG was received on February 28, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31437:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14B059	Total Petroleum Hydrocarbons as Gasoline

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** March 20, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14B059

**Sample Identification**

PZ-105\_021114\_03  
TB\_PZ-105\_021114A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB\_PZ-105\_021114A was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	C <sub>6</sub> -C <sub>12</sub>	17 ug/L	PZ-105_021114_03

Sample FB\_021214\_19 (from SDG 280-52081-1) were identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.



## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14B059	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

Samples PZ-105\_021114\_03 and PZ-105\_021114\_01 (from SDG 280-52029-1) were identified as split samples. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG  
 14B059**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14B059	PZ-105_021114_03 TB_PZ-105_021114A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification  
 Summary - SDG 14B059**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary  
 - SDG 14B059**

No Sample Data Qualified in this SDG

LDC #: 31437A7

VALIDATION COMPLETENESS WORKSHEET

Date: 3/14/14

SDG #: 14B059

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: *VG*

2nd Reviewer: *AL*

METHOD: TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/11/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	ICS 1p
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	S = 1 + PZ-105-021114_01 (280-52029-1)
XIII.	Field blanks	SW	*TB = 2 EB = EB-RD-07-020714 (280-51953-1) FB = FB-021214-19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*Water*

1	PZ-105_021114_03	11	<i>MALIKIN</i>	21		31	
2	TB_PZ-105_021114A	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LDC #: 31437A7

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JG  
2nd Reviewer: EC

METHOD: GC HPLC

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/07/14

Field blank type: (circle one) Field Blank / Trip Blank / Atmospheric Blank / Ambient Blank  
Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other: \_\_\_\_\_

Associated Samples: 1 (ND)

Compound	Blank ID	Blank ID	Sample Identification						
	<u>EB-RD-07</u>	<u>020714</u>							
<u>C<sub>6</sub>-G<sub>2</sub></u>	<u>17</u>								
CRQL									

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Trip Blank / Atmospheric Blank / Ambient Blank

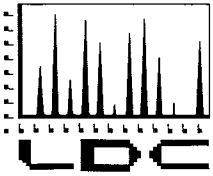
Associated Samples: \_\_\_\_\_

Rinsate / Equipment Rinsate / Equipment Blank / Source Blank / Other: \_\_\_\_\_

Compound	Blank ID	Blank ID	Sample Identification						
CRQL									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 6<sup>th</sup> & 16<sup>th</sup>, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

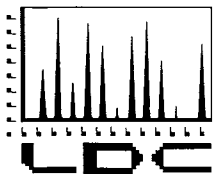
## LDC Project #31438:

<u>SDG #</u>	<u>Fraction</u>
280-52081-1 280-52127-1	Volatiles, 1,4-Dioxane, Semivolatiles, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Explosives, Formaldehyde, Perchlorate

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

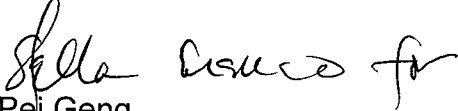
- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.



Please feel free to contact us if you have any questions.

Sincerely,

  
Pei Geng  
Project Manager/Senior Chemist

**LDC #31438 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B) (8260B-S)		1,4-Dioxane (8260B-S)		SVOA (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Herbs. (8151A)		GRO (8015B)		DRO (8015B)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)			
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-52081-1	03/06/14	03/27/14	23	0	9	0	1	0	1	0	1	0	18	0	18	0	1	0	1	0	5	0	3	0	1	0	1	0	8	0
B	280-52127-1	03/16/14	03/27/14	11	0	2	0	-	-	-	-	-	8	0	8	0	8	0	-	-	4	0	2	0	-	-	-	-	-	-	
Total				34	0	11	0	1	0	1	0	1	0	26	0	26	0	1	0	1	0	9	0	5	0	1	0	1	0	8	0

**LDC #31438 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	F (300.0)		NO <sub>2</sub> -N (300.0)		NO <sub>3</sub> (300.0)		SO <sub>4</sub> (300.0)		Cr(VI) (7196A)		Total CN- (9012A)		CLO <sub>4</sub> (314.0)	
				W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-52081-1	03/06/14	03/27/14	3	0	6	0	1	0	1	0	1	0	1	0	3	0
B	280-52127-1	03/16/14	03/27/14	4	0	3	0	-	-	-	-	-	-	-	-	-	
Total				7	0	9	0	1	0	1	0	1	0	1	0	3	0

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

### Sample Identification

RD-54A_021214_01	RD-50_021214_01
TB_RD-54A_021214	RD-57_021214_01
RD-54B_021214_01	RD-64_021214_01
RD-54C_021214_01	RD-54A_021214_01MS
RD-87_021214_01	RD-54A_021214_01MSD
TB_RD-87_021214	
RD-90_021214_01	
RD-94_021214_01	
RD-97_021214_01	
RD-85_021214_01	
TB_RD-85_021214	
RD-103(QA15)_021214_01	
RD-103(QA19)_021214_01	
RD-103(QA20)_021214_01	
FB_021214_19	
TB_FB_021214	
RD-22_021214_01	
RD-23_021214_01	
TB_RD-23_021214	
RD-33A_021214_01	



## Introduction

This data review covers 25 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_RD-54A\_021214, TB\_RD-87\_021214, TB\_RD-85\_021214, TB\_FB\_021214, and TB\_RD-23\_021214 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-87_021214	2/12/14	Acetone	2.7 ug/L	RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01
TB_RD-23_021214	2/12/14	Acetone	5.1 ug/L	RD-22_021214_01 RD-23_021214_01 RD-33A_021214_01 RD-50_021214_01 RD-57_021214_01 RD-64_021214_01

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	RD-54A_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01

Sample FB\_021214\_19 was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	RD-54A_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-94_021214_01	Acetone	6.3 ug/L	10U ug/L
RD-33A_021214_01	Acetone	3.5 ug/L	10U ug/L
RD-50_021214_01	Acetone	5.1 ug/L	10U ug/L
RD-57_021214_01	Acetone	2.2 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-54C_021214_01	1,2-Dichloroethane-d4 Bromofluorobenzene Dibromofluoromethane Toluene-d8	70 (80-120) 80 (86-115) 80 (86-118) 82 (88-110)	All TCL compounds	J (all detects) UJ (all non-detects)	P

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-103(QA15)_021214_01	1,2-Dichloroethane-d4 Bromofluorobenzene Dibromofluoromethane Toluene-d8	71 (80-120) 78 (86-115) 80 (86-118) 82 (88-110)	All TCL compounds	J (all detects) UJ (all non-detects)	P
TB_FB_021214	1,2-Dichloroethane-d4 Bromofluorobenzene Dibromofluoromethane Toluene-d8	72 (80-120) 78 (86-115) 81 (86-118) 82 (88-110)	All TCL compounds except Acrolein p-Isopropyltoluene 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A
RD-23_021214_01	1,2-Dichloroethane-d4 Bromofluorobenzene Dibromofluoromethane Toluene-d8	70 (80-120) 78 (86-115) 80 (86-118) 83 (88-110)	trans-1,2-Dichloroethene  Trichloroethene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D 280-213577/4,5 (FB_021214_19 TB_FB_021214 MB 280-213557/6)	Vinyl acetate	61 (63-150)	-	-	J (all detects) UJ (all non-detects)	P

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	RD-54C_021214_01 RD-103(QA15)_021214_01	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
280-52081-1	TB_FB_021214	All TCL compounds except Acrolein p-Isopropyltoluene 2-Chloroethylvinyl ether	J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-52081-1	RD-23_021214_01	trans-1,2-Dichloroethene  Trichloroethene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Surrogate spikes (%R) (S)
280-52081-1	FB_021214_19 TB_FB_021214	Vinyl acetate	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52081-1	RD-54A_021214_01 TB_RD-54A_021214 RD-54B_021214_01 RD-54C_021214_01 RD-87_021214_01 TB_RD-87_021214 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01 RD-85_021214_01 TB_RD-85_021214 RD-103(QA15)_021214_01 RD-103(QA19)_021214_01 RD-103(QA20)_021214_01 FB_021214_19 TB_FB_021214 RD-22_021214_01 RD-23_021214_01 TB_RD-23_021214 RD-33A_021214_01 RD-50_021214_01 RD-57_021214_01 RD-64_021214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52081-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Modified Final Concentration</b>	<b>A or P</b>	<b>Code</b>
280-52081-1	RD-94_021214_01	Acetone	10U ug/L	A	F, T
280-52081-1	RD-33A_021214_01	Acetone	10U ug/L	A	T
280-52081-1	RD-50_021214_01	Acetone	10U ug/L	A	T
280-52081-1	RD-57_021214_01	Acetone	10U ug/L	A	T

LDC #: 31438A1a  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/19/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer:

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	SW	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2, 6, 11, 17, 20    FB = 16    EB = EB_RD-07_020714

Note: A = Acceptable    ND = No compounds detected    D = Duplicate  
 N = Not provided/applicable    R = Rinsate    TB = Trip blank  
 SW = See worksheet    FB = Field blank    EB = Equipment blank

(280-51958-1)

Validated Samples:

Water

1	RD-54A_021214_01	11	TB_RD-85_021214	21	RD-33A_021214_01	31	MB 280-213415/5 (ppm)
2	TB_RD-54A_021214	12	<del>RD-103(P02)_021214_01</del>	22	RD-50_021214_01	32	
3	RD-54B_021214_01	13	RD-103(QA15)_021214_01	23	RD-57_021214_01	33	
4	RD-54C_021214_01	14	RD-103(QA19)_021214_01	24	RD-64_021214_01	34	
5	RD-87_021214_01	15	RD-103(QA20)_021214_01	25	RD-54A_021214_01MS	35	
6	TB_RD-87_021214	16	FB_021214_19	26	RD-54A_021214_01MSD	36	
7	RD-90_021214_01	17	TB_FB_021214	27		37	
8	RD-94_021214_01	18	RD-22_021214_01	28		38	
9	RD-97_021214_01	19	RD-23_021214_01	29		39	
10	RD-85_021214_01	20	TB_RD-23_021214	30		40	

Std W = 16, 17  
 VOS = All others



# TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP. PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ. QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR. RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS. SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT. TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU. UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV. VVVV.

\* = System performance check compounds (SPCC) for RRF ; \*\* = Calibration check compounds (CCC) for %RSD.





VALIDATION FINDINGS WORKSHEET

Surrogate Spikes

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".  
 Y N / N/A Were all surrogate %R within QC limits?  
 Y N / N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications Code: S
		4	DCE	70 ( 80-120 )	J/MS/P (qual all)
			BFB	80 ( 86-115 )	
			DFM	80 ( 86-118 )	
			TOL	82 ( 88-110 )	
		13	DCE	71 ( )	
			BFB	78 ( )	
			DFM	80 ( )	
			TOL	82 ( )	
		17	DCE	72 ( )	J/MS/A (qual all except FFF)
			BFB	78 ( )	GGG, II)
			DFM	81 ( )	
			TOL	82 ( )	
		19	DCE	70 ( )	(qual PPP, S)
			BFB	78 ( )	
			DFM	80 ( )	
			TOL	83 ( )	

QC Limits (Water)

- 88-110
- 86-115
- 80-120
- 86-118

- SMC1 (TOL) = Toluene-d8
- SMC2 (BFB) = Bromofluorobenzene
- SMC3 (DCE) = 1,2-Dichloroethane-d4
- SMC4 (DFM) = Dibromofluoromethane



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

RD-54A\_021214\_01  
TB\_RD-54A\_021214  
RD-54B\_021214\_01  
RD-54C\_021214\_01  
RD-85\_021214\_01  
TB\_RD-85\_021214  
RD-33A\_021214\_01  
TB\_RD-33A\_021214  
RD-64\_021214\_01

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Samples TB\_RD-54A\_021214, TB\_RD-85\_021214, and TB\_RD-33A\_021214 were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.



## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	RD-54A_021214_01 TB_RD-54A_021214 RD-54B_021214_01 RD-54C_021214_01 RD-85_021214_01 TB_RD-85_021214 RD-33A_021214_01 TB_RD-33A_021214 RD-64_021214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A1b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/12/14

SDG #: 280-52081-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: SVC

2nd Reviewer:

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 'b
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2, 6, 8

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-54A_021214_01	11	MB 280-2/3612/5	21		31
2	TB_RD-54A_021214	12	↓ -213964/5	22		32
3	RD-54B_021214_01	13		23		33
4	RD-54C_021214_01	14		24		34
5	RD-85_021214_01	15		25		35
6	TB_RD-85_021214	16		26		36
7	RD-33A_021214_01	17		27		37
8	TB_RD-33A_021214	18		28		38
9	RD-64_021214_01	19		29		39
10		20		30		40

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No semivolatile contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. System Performance**

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	FB_021214_19	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG



LDC #: 31438A2a  
 SDG #: 280-52081-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer:

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	FB = 1

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*Water*

1	FB_021214_19	11	MB 280-213103/1A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** Chlorinated Pesticides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No chlorinated pesticide contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

## **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

## **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	FB_021214_19	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A3a

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52081-1

Level V

Laboratory: Test America, Inc.

Date: 3/12/14

Page: 1 of 1

Reviewer: *NG*

2nd Reviewer: *Q*

**METHOD:** GC Chlorinated Pesticides (EPA SW 846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	ICS 'D
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	FB = 1

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	FB_021214_19	11	MB 280-213359/1A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082 for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/ECD Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No polychlorinated biphenyl contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Florisil Cartridge Check**

Florisil cleanup was not required and therefore not performed in this SDG.

### **XI. GPC Calibration**

GPC cleanup was not required and therefore not performed in this SDG.

### **XII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **XIII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Polychlorinated Biphenyls - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	FB_021214_19	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/14/14

SDG #: 280-52081-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: JG

2nd Reviewer: J

**METHOD:** GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	N	
XIII.	Compound quantitation/RL/LOQ/LODs	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	FB = 1

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	FB_021214_19	11	MB 280-2/3351/1-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

### Sample Identification

RD-54A_021214_01	RD-54C_021214_01F	RD-64_021214_01MS
RD-54B_021214_01	RD-87_021214_01F	RD-64_021214_01MSD
RD-54C_021214_01	RD-90_021214_01F	RD-54A_021214_01FMS
RD-87_021214_01	RD-94_021214_01F	RD-54A_021214_01FMSD
RD-90_021214_01	RD-97_021214_01F	RD-103(P02)_021214_01FMS
RD-94_021214_01	RD-85_021214_01F	RD-103(P02)_021214_01FMSD
RD-97_021214_01	RD-103(P02)_021214_01F	
RD-85_021214_01	RD-103(QA15)_021214_01F	
RD-103(P02)_021214_01	RD-103(QA20)_021214_01F	
RD-103(QA15)_021214_01	FB_021214_19F	
RD-103(QA20)_021214_01	RD-22_021214_01F	
FB_021214_19	RD-23_021214_01F	
RD-22_021214_01	RD-33A_021214_01F	
RD-23_021214_01	RD-50_021214_01F	
RD-33A_021214_01	RD-57_021214_01F	
RD-50_021214_01	RD-64_021214_01F	
RD-57_021214_01	RD-85_021214_01MS	
RD-64_021214_01	RD-85_021214_01MSD	
RD-54A_021214_01F	RD-103(QA15)_021214_01MS	
RD-54B_021214_01F	RD-103(QA15)_021214_01MSD	

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 46 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Manganese	0.0837 mg/L 0.000400 mg/L	FB_021214_19F
PB (prep blank)	Zinc	0.00225 mg/L	RD-54A_021214_01 RD-54B_021214_01 RD-54C_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01 RD-85_021214_01 RD-103(P02)_021214_01 RD-103(QA15)_021214_01 RD-103(QA20)_021214_01 FB_021214_19 RD-22_021214_01 RD-23_021214_01 RD-33A_021214_01 RD-50_021214_01 RD-57_021214_01 RD-64_021214_01



Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Thallium	0.0000920 mg/L	RD-54A_021214_01F RD-54B_021214_01F RD-54C_021214_01F RD-87_021214_01F RD-90_021214_01F RD-94_021214_01F RD-97_021214_01F RD-85_021214_01F RD-103(P02)_021214_01F RD-103(QA15)_021214_01F RD-103(QA20)_021214_01F FB_021214_19F RD-22_021214_01F RD-23_021214_01F RD-33A_021214_01F RD-50_021214_01F RD-57_021214_01F RD-64_021214_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
FB_021214_19F	Calcium Manganese	0.10 mg/L 0.00038 mg/L	0.10U mg/L 0.00038U mg/L
RD-87_021214_01	Zinc	0.0028 mg/L	0.0028U mg/L
RD-90_021214_01	Zinc	0.0051 mg/L	0.0051U mg/L
RD-94_021214_01	Zinc	0.0036 mg/L	0.0036U mg/L
RD-97_021214_01	Zinc	0.0059 mg/L	0.0059U mg/L
RD-85_021214_01	Zinc	0.0048 mg/L	0.0048U mg/L
RD-22_021214_01	Zinc	0.0096 mg/L	0.0096U mg/L
RD-23_021214_01	Zinc	0.0079 mg/L	0.0079U mg/L
RD-54A_021214_01F	Thallium	0.00014 mg/L	0.00014U mg/L
RD-54B_021214_01F	Thallium	0.000071 mg/L	0.000071U mg/L
RD-85_021214_01F	Thallium	0.000078 mg/L	0.000078U mg/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-33A_021214_01F	Thallium	0.000057 mg/L	0.000057U mg/L
RD-57_021214_01F	Thallium	0.00014 mg/L	0.00014U mg/L

Samples EB\_RD-07\_020714 and EB\_RD-07\_020714F (from SDG 280-5198-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	RD-54A_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	RD-54A_021214_01F RD-87_021214_01F RD-90_021214_01F RD-94_021214_01F RD-97_021214_01F

Samples FB\_021214\_19 and FB\_021214\_19F were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel Sodium	0.00041 mg/L 0.12 mg/L	RD-54A_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01
FB_021214_19F	2/12/14	Calcium Magnesium Manganese Nickel Sodium Strontium	0.10 mg/L 0.020 mg/L 0.00038 mg/L 0.00048 mg/L 0.13 mg/L 0.00030 mg/L	RD-54A_021214_01F RD-87_021214_01F RD-90_021214_01F RD-94_021214_01F RD-97_021214_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-54A_021214_01	Antimony Nickel	0.00041 mg/L 0.00044 mg/L	0.00041U mg/L 0.00044U mg/L
RD-87_021214_01	Nickel Zinc	0.0010 mg/L 0.0028 mg/L	0.0010U mg/L 0.0028U mg/L
RD-90_021214_01	Nickel Zinc	0.00037 mg/L 0.0051 mg/L	0.00037U mg/L 0.0051U mg/L
RD-94_021214_01	Copper Nickel Zinc	0.00087 mg/L 0.0014 mg/L 0.0036 mg/L	0.00087U mg/L 0.0014U mg/L 0.0036U mg/L
RD-97_021214_01	Antimony Chromium Nickel Zinc	0.00085 mg/L 0.00071 mg/L 0.0015 mg/L 0.0059 mg/L	0.00085U mg/L 0.00071U mg/L 0.0015U mg/L 0.0059U mg/L
RD-54A_021214_01F	Antimony Copper Nickel	0.00052 mg/L 0.00065 mg/L 0.00081 mg/L	0.00052U mg/L 0.00065U mg/L 0.00081U mg/L
RD-87_021214_01F	Nickel Zinc	0.0011 mg/L 0.0031 mg/L	0.0011U mg/L 0.0031U mg/L
RD-90_021214_01F	Nickel Zinc	0.00056 mg/L 0.0044 mg/L	0.00056U mg/L 0.0044U mg/L
RD-94_021214_01F	Copper Nickel Zinc	0.00058 mg/L 0.0013 mg/L 0.0044 mg/L	0.00058U mg/L 0.0013U mg/L 0.0044U mg/L
RD-97_021214_01F	Antimony Nickel Zinc	0.00075 mg/L 0.00084 mg/L 0.0031 mg/L	0.00075U mg/L 0.00084U mg/L 0.0031U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

### XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52081-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52081-1	RD-54A_021214_01 RD-54B_021214_01 RD-54C_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-97_021214_01 RD-85_021214_01 RD-103(P02)_021214_01 RD-103(QA15)_021214_01 RD-103(QA20)_021214_01 FB_021214_19 RD-22_021214_01 RD-23_021214_01 RD-33A_021214_01 RD-50_021214_01 RD-57_021214_01 RD-64_021214_01 RD-54A_021214_01F RD-54B_021214_01F RD-54C_021214_01F RD-87_021214_01F RD-90_021214_01F RD-94_021214_01F RD-97_021214_01F RD-85_021214_01F RD-103(P02)_021214_01F RD-103(QA15)_021214_01F RD-103(QA20)_021214_01F FB_021214_19F RD-22_021214_01F RD-23_021214_01F RD-33A_021214_01F RD-50_021214_01F RD-57_021214_01F RD-64_021214_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52081-1	FB_021214_19F	Calcium Manganese	0.10U mg/L 0.00038U mg/L	A	B
280-52081-1	RD-87_021214_01	Zinc	0.0028U mg/L	A	B
280-52081-1	RD-90_021214_01	Zinc	0.0051U mg/L	A	B
280-52081-1	RD-94_021214_01	Zinc	0.0036U mg/L	A	B
280-52081-1	RD-97_021214_01	Zinc	0.0059U mg/L	A	B

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52081-1	RD-85_021214_01	Zinc	0.0048U mg/L	A	B
280-52081-1	RD-22_021214_01	Zinc	0.0096U mg/L	A	B
280-52081-1	RD-23_021214_01	Zinc	0.0079U mg/L	A	B
280-52081-1	RD-54A_021214_01F	Thallium	0.00014U mg/L	A	B
280-52081-1	RD-54B_021214_01F	Thallium	0.000071U mg/L	A	B
280-52081-1	RD-85_021214_01F	Thallium	0.000078U mg/L	A	B
280-52081-1	RD-33A_021214_01F	Thallium	0.000057U mg/L	A	B
280-52081-1	RD-57_021214_01F	Thallium	0.00014U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52081-1	RD-54A_021214_01	Antimony Nickel	0.00041U mg/L 0.00044U mg/L	A	F
280-52081-1	RD-87_021214_01	Nickel Zinc	0.0010U mg/L 0.0028U mg/L	A	F
280-52081-1	RD-90_021214_01	Nickel Zinc	0.00037U mg/L 0.0051U mg/L	A	F
280-52081-1	RD-94_021214_01	Copper Nickel Zinc	0.00087U mg/L 0.0014U mg/L 0.0036U mg/L	A	F
280-52081-1	RD-97_021214_01	Antimony Chromium Nickel Zinc	0.00085U mg/L 0.00071U mg/L 0.0015U mg/L 0.0059U mg/L	A	F
280-52081-1	RD-54A_021214_01F	Antimony Copper Nickel	0.00052U mg/L 0.00065U mg/L 0.00081U mg/L	A	F
280-52081-1	RD-87_021214_01F	Nickel Zinc	0.0011U mg/L 0.0031U mg/L	A	F

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52081-1	RD-90_021214_01F	Nickel Zinc	0.00056U mg/L 0.0044U mg/L	A	F
280-52081-1	RD-94_021214_01F	Copper Nickel Zinc	0.00058U mg/L 0.0013U mg/L 0.0044U mg/L	A	F
280-52081-1	RD-97_021214_01F	Antimony Nickel Zinc	0.00075U mg/L 0.00084U mg/L 0.0031U mg/L	A	F

LDC #: 31438A4  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-12-14  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:

**METHOD:** Metals (EPA SW 846 Method ~~6020A-7000~~ <sup>9M4</sup> 6020/6010B/7470A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC		
XI.	ICP Serial Dilution	A <del>X</del>	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	SW	FB = 12, 30

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB = EB-RD-07-020714 (SDG: 280-51958-1)

EB = EB-RD-07-020714F (SDG: 280-51958-1)

Validated Samples:

*all water*

1	RD-54A_021214_01	11	RD-103(QA20)_021214_01	21	RD-54C_021214_01F	31	RD-22_021214_01F
2	RD-54B_021214_01	12	FB_021214_19	22	RD-87_021214_01F	32	RD-23_021214_01F
3	RD-54C_021214_01	13	RD-22_021214_01	23	RD-90_021214_01F	33	RD-33A_021214_01F
4	RD-87_021214_01	14	RD-23_021214_01	24	RD-94_021214_01F	34	RD-50_021214_01F
5	RD-90_021214_01	15	RD-33A_021214_01	25	RD-97_021214_01F	35	RD-57_021214_01F
6	RD-94_021214_01	16	RD-50_021214_01	26	RD-85_021214_01F	36	RD-64_021214_01F
7	RD-97_021214_01	17	RD-57_021214_01	27	RD-103(P02)_021214_01F	37	
8	RD-85_021214_01	18	RD-64_021214_01	28	RD-103(QA15)_021214_01F	38	
9	RD-103(P02)_021214_01	19	RD-54A_021214_01F	29	RD-103(QA20)_021214_01F	39	
10	RD-103(QA15)_021214_01	20	RD-54B_021214_01F	30	FB_021214_19F	40	

Notes: Samples appended with "F" were analyzed as dissolved



LDC #: 31438A4  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-12-14  
 Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** Metals (EPA SW 846 Method 6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates:
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks		
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis		See page 1 of 2
VII.	Duplicate Sample Analysis		
VIII.	Laboratory Control Samples (LCS)		
IX.	Internal Standard (ICP-MS)	N	
X.	<del>Furnace Atomic Absorption QC</del>		
XI.	ICP Serial Dilution	N	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data		
XIV.	Field Duplicates		
XV.	Field Blanks		

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

41	RD-85_021214_01MS	51		61		71	
42	RD-85_021214_01MSD	52		62		72	
43	RD-103(QA15)_021214_01MS	53		63		73	
44	RD-103(QA15)_021214_01MSD	54		64		74	
45	RD-64_021214_01MS	55		65		75	
46	RD-64_021214_01MSD	56		66		76	
47	RD-54A_021214_01FMS	57		67		77	
48	RD-54A_021214_01FMSD	58		68		78	
49	RD-103(P02)_021214_01FMS	59		69 <sup>1</sup>	PBW 1	79	
50	RD-103(P02)_021214_01FMSD	60		70 <sup>2</sup>	PBW 2	80	

Notes: Samples appended with "F" were analyzed as dissolved



Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	30					
Ca		0.0837		0.4185	0.10					
Mn		0.000400		0.0020	0.00038					

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-18 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	4	5	6	7	8	13	14
Zn		0.00225		0.0112	0.0028	0.0051	0.0036	0.0059	0.0048	0.0096	0.0079

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 19-36 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	19	20	26	33	35
Tl		0.0000920		0.00046	0.00014	0.000071	0.000078	0.000057	0.00014

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note: a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N/A Were field blanks identified in this SDG?

N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one)  Field Blank  Rinsate  Other **EB**

Associated Samples: 1,4,5,6,7 Qual: U (F)

Analyte	Blank ID	Blank ID	Action Level	Sample Identification								
				1	4	5	6	7				
Sb	12 sampled: 2/12/14	EB_RD- 07_020714 sampled: 2/7/14	0.0022	0.00041					0.00085			
Cr		0.00061	0.0030						0.00071			
Cu		0.00078	0.0039				0.00087					
Ni	0.00041		0.0020	0.00044	0.0010	0.00037	0.0014	0.0015				
Na	0.12		0.600									
Zn		0.0028	0.0140		0.0028	0.0051	0.0036	0.0059				

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below **Soil factor applied:** NA

**Field blank type:** (circle one)  Field Blank  Rinsate  Other **EB**

Associated Samples: 19,22,23,24,25 Qual: U (F)

Analyte	Blank ID	Blank ID	Action Level	Sample Identification								
				19	22	23	24	25				
Sb	30 sampled: 2/12/14	EB_RD- 07_020714F sampled: 2/7/14	0.0022	0.00052					0.00075			
Ca	0.10		0.500									
Cu		0.00080	0.0040	0.00065			0.00058					
Mg	0.020		0.100									
Mn	0.00038		0.0019									
Ni	0.00048		0.0024	0.00081	0.0011	0.00056	0.0013	0.00084				
Na	0.13		0.650									
Sr	0.00030		0.0015									
Zn		0.0026	0.0130		0.0031	0.0044	0.0044	0.0031				

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** Herbicides

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8151A for Herbicides.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No herbicide contaminants were found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No herbicide contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Data Qualification Summary - SDG 280-52081-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-52081-1	FB_021214_19	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Herbicides - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A5  
 SDG #: 280-52081-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/14/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: A

**METHOD:** GC Herbicides (EPA SW 846 Method 8151A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V61	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1p
VIII.	Target compound identification	N	
IX.	Compound Quantitation and CRQLs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	FB = 1

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples: Water

1	FB_021214_19	11	MB 280-213214/1-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** March 20, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

RD-54A\_021214\_01  
RD-85\_021214\_01  
RD-103(P02)\_021214\_01  
RD-103(QA15)\_021214\_01  
RD-103(QA20)\_021214\_01  
FB\_021214\_19  
RD-23\_021214\_01  
RD-50\_021214\_01  
FB\_021214\_19MS  
FB\_021214\_19MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride, Nitrate as Nitrogen, Nitrite, and Sulfate, EPA SW846 Method 9012A for Total Cyanide, EPA SW846 Method 7196A for Hexavalent Chromium, and EPA Method 314.0 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Sulfate	0.460 mg/L	FB_021214_19

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
FB_021214_19	Sulfate	0.77 mg/L	0.77U mg/L

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No contaminant concentrations were found.

Sample FB\_021214\_19 was identified as a field blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Sulfate	0.77 mg/L	No associated samples in this SDG

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52081-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52081-1	RD-54A_021214_01 RD-85_021214_01 RD-103(P02)_021214_01 RD-103(QA15)_021214_01 RD-103(QA20)_021214_01 FB_021214_19 RD-23_021214_01 RD-50_021214_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52081-1	FB_021214_19	Sulfate	0.77U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A6  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-13-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JVG

**METHOD:** Fluoride, Nitrate-N, Nitrite, Sulfate (EPA Method 300.0), Total Cyanide (EPA SW846 Method 9012A), Hexavalent Chromium (EPA SW846 Method 7196A), Perchlorate (EPA Method 314.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS / LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	SW	FB = 6 EB = EB_RD-07-020714* SDG: 280-51958-1

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*all water*

1	RD-54A_021214_01	11		21		31	
2	RD-85_021214_01	12		22		32	
3	RD-103(P02)_021214_01	13		23		33	
4	RD-103(QA15)_021214_01	14		24		34	
5	RD-103(QA20)_021214_01	15		25		35	
6	FB_021214_19	16		26		36	
7	RD-23_021214_01	17		27		37	
8	RD-50_021214_01	18		28		38	
9	FB_021214_19MS	19		29		39	
10	FB_021214_19MSD	20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Inorganics, Method See Cover

**Conc. units:** mg/L **Associated Samples:** 6 **Qual:** U (B)

Analyte	Blank ID	Blank ID	Blank Action Limit	Associated Samples							
	PB	ICB/CCB (mg/L)									
SO4	0.460		2.300								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N N/A Were field blanks identified in this SDG?

N N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** 2/12/14 **Soil factor applied:** NA

**Field blank type:** (circle one)  Field Blank  Rinsate / Other: \_\_\_\_\_

**Associated Samples:** none

Analyte	Blank ID	Action Level	No Qual.	Sample Identification			
	6						
SO4	0.77	3.85					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19  
TB\_FB\_021214  
RD-23\_021214\_01  
TB\_RD-23\_021214  
RD-50\_021214\_01  
RD-23\_021214\_01MS  
RD-23\_021214\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound	Concentration	Associated Samples
MB 280-213463/4	2/18/14	TPH as gasoline (C6-C12)	10.5 ug/L	All samples in SDG 280-52081-1

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
TB_FB_021214	TPH as gasoline (C6-C12)	10 ug/L	100U ug/L
TB_RD-23_021214	TPH as gasoline (C6-C12)	14 ug/L	100U ug/L
RD-50_021214_01	TPH as gasoline (C6-C12)	12 ug/L	100U ug/L

Samples TB\_FB\_021214 and TB\_RD-23\_021214 were identified as trip blanks. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_FB_021214	2/12/14	TPH as gasoline (C6-C12)	10 ug/L	FB_021214_19
TB_RD-23_021214	2/12/14	TPH as gasoline (C6-C12)	14 ug/L	RD-23_021214_01 RD-50_021214_01

Sample FB\_021214\_19 was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-50_021214_01	TPH as gasoline (C6-C12)	12 ug/L	100U ug/L

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-23_021214_01	a,a,a-Trifluorotoluene	318 (82-110)	All TCL compounds	J (all detects)	A

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-23_021214_01MS/MSD (RD-23_021214_01)	TPH as gasoline (C6-C12)	71 (79-149)	-	-	J (all detects) UJ (all non-detects)	A

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	RD-23_021214_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-52081-1	RD-23_021214_01	TPH as gasoline (C6-C12)	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-52081-1	FB_021214_19 TB_FB_021214 RD-23_021214_01 TB_RD-23_021214 RD-50_021214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52081-1	TB_FB_021214	TPH as gasoline (C6-C12)	100U ug/L	A	B
280-52081-1	TB_RD-23_021214	TPH as gasoline (C6-C12)	100U ug/L	A	B
280-52081-1	RD-50_021214_01	TPH as gasoline (C6-C12)	100U ug/L	A	B

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52081-1	RD-50_021214_01	TPH as gasoline (C6-C12)	100U ug/L	A	F

LDC #: 31438A7  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JVB  
 2nd Reviewer:

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	SW	
V.	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	LCS 1D
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	SW	* FB = 1 TB = 2, 4

Note: A = Acceptable      \*ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	FB_021214_19	11	MB 280-213463/4	21		31	
2	TB_FB_021214	12		22		32	
3	RD-23_021214_01	13		23		33	
4	TB_RD-23_021214	14		24		34	
5	RD-50_021214_01	15		25		35	
6	RD-23_021214_01MS	16		26		36	
7	RD-23_021214_01MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19  
RD-23\_021214\_01  
RD-50\_021214\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No total petroleum hydrocarbons as extractable contaminants were found.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. Surrogate recoveries (%R) were not within QC limits for samples RD-23\_021214\_01 and RD-50\_021214\_01. No data were qualified for samples analyzed at greater than 5X dilution.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D 280-213349/2,3-B (All samples in SDG 280-52081-1)	TPH as extractables (C8-C30)	-	79 (80-120)	-	J (all detects) UJ (all non-detects)	P

### **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	FB_021214_19 RD-23_021214_01 RD-50_021214_01	TPH as extractables (C8-C30)	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52081-1	FB_021214_19 RD-23_021214_01 RD-50_021214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A8  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JG  
 2nd Reviewer:

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	SW	LCS 1p
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	FB = 1

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	FB_021214_19	11	MB 280-213349/1-B	21		31	
2	RD-23_021214_01	12		22		32	
3	RD-50_021214_01	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** Explosives

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330A for Explosives.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No explosive contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	FB_021214_19	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A40  
 SDG #: 280-52081-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/14/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Explosives (EPA SW 846 Method 8330A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS 1D
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	FB = 1

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*Water*

1	FB_021214_19	11	MB 280-213237/A-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

FB\_021214\_19

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Calibration Verification**

Calibration verification data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No formaldehyde was found.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52081-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Data Qualification Summary - SDG 280-52081-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-52081-1	FB_021214_19	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A71  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/14/14  
 Page: 1 of 1  
 Reviewer: JG  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	N	Not req'd.
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	ICS
VIII.	Target compound identification	N	
IX.	Compound Quantitation RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	FB = 1

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	FB_021214_19	11	MB 240-119743/2-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

RD-103(P02)\_021214\_01  
RD-103(QA15)\_021214\_01  
RD-103(QA20)\_021214\_01  
FB\_021214\_19  
RD-22\_021214\_01  
RD-23\_021214\_01  
RD-33A\_021214\_01  
RD-57\_021214\_01  
RD-103(QA20)\_021214\_01MS  
RD-103(QA20)\_021214\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. LC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Calibration verification data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

Sample FB\_021214\_19 was identified as a field blank. No perchlorate was found.

## VI. Surrogate Spikes

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-103(QA20)_021214_01MS/MSD (RD-103(QA20)_021214_01)	Perchlorate	-	123 (80-120)	-	J (all detects)	A

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

**IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

Internal standards data were not reviewed for Level V.

**XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

**XII. Compound Quantitation**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52081-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

**XIII. System Performance**

Raw data were not reviewed for this SDG.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-57\_021214\_01 and RD-57\_021214\_03 (from SDG 14B067) were identified as split samples. No perchlorate was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52081-1	RD-103(QA20)_021214_01	Perchlorate	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-52081-1	RD-103(P02)_021214_01 RD-103(QA15)_021214_01 RD-103(QA20)_021214_01 FB_021214_19 RD-22_021214_01 RD-23_021214_01 RD-33A_021214_01 RD-57_021214_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	Not req'd.
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS 1p
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates / Split	ND	S = 6 + RD-57-021214-03 (14B067)
XVI.	Field blanks	ND	FB = 4

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

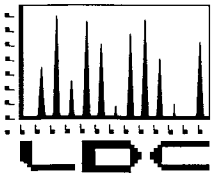
Validated Samples:

Water

1	RD-103(P02)_021214_01	11	MB 286 - 213473/14	21		31	
2	RD-103(QA15)_021214_01	12	✓ - 213695/14	22		32	
3	RD-103(QA20)_021214_01	13		23		33	
4	FB_021214_19	14		24		34	
5	RD-22_021214_01	15		25		35	
6	RD-23_021214_01	16		26		36	
7	RD-33A_021214_01	17		27		37	
8	RD-57_021214_01	18		28		38	
9	RD-103(QA20)_021214_01MS	19		29		39	
10	RD-103(QA20)_021214_01MSD	20		30		40	







# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 6<sup>th</sup> & 16<sup>th</sup>, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

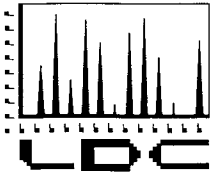
## LDC Project #31438:

<u>SDG #</u>	<u>Fraction</u>
280-52081-1 280-52127-1	Volatiles, 1,4-Dioxane, Semivolatiles, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Herbicides, Wet Chemistry, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Explosives, Formaldehyde, Perchlorate

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

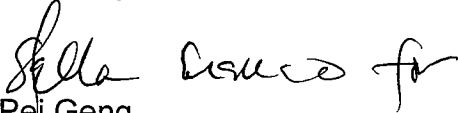
- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.



Please feel free to contact us if you have any questions.

Sincerely,

  
Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV		LDC #31438 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																											
LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B) (8260B-S)	1,4-Dioxane (8260B-S)		SVOA (8270C)		Pest. (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		Herbs. (8151A)		GRO (8015B)		DRO (8015B)		Formaldehyde (8315A)		Expl. (8330A)		CLO <sub>4</sub> (6860)		
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W
A	280-52081-1	03/06/14	03/27/14	23	0	9	0	1	0	1	0	1	0	18	0	18	0	1	0	1	0	3	0	1	0	1	0	8	0
B	280-52127-1	03/16/14	03/27/14	11	0	2	0	-	-	-	-	-	8	0	8	0	-	-	-	4	0	2	0	-	-	-	-	-	
Total		T/PG		34	0	11	0	1	0	1	0	1	0	26	0	26	0	1	0	9	0	5	0	1	0	1	0	8	0

EDD Client Select IV		LDC #31438 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																							
LDC	SDG#	DATE REC'D	(3) DATE DUE	F (300.0)	NO <sub>2</sub> -N (300.0)		NO <sub>3</sub> (300.0)		SO <sub>4</sub> (300.0)		Cr(VI) (7196A)		Total CN- (9012A)		CLO <sub>4</sub> (314.0)										
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S					
A	280-52081-1	03/06/14	03/27/14	3	0	6	0	1	0	1	0	1	0	3	0										
B	280-52127-1	03/16/14	03/27/14	4	0	3	0	-	-	-	-	-	-	-											
Total		T/PG		7	0	9	0	1	0	1	0	1	0	3	0										

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 13, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52127-1

**Sample Identification**

RD-19\_021314\_01  
RD-91\_021314\_01  
RD-63\_021314\_01  
TB\_RD-63\_021314  
PZ-109\_021314\_01A  
RD-24\_021314\_01  
TB\_RD-24\_021314  
PZ-108\_021314\_01  
TB\_PZ-108\_021314  
PZ-122\_021314\_01  
RD-96\_021314\_01  
RD-63\_021314\_01MS  
RD-63\_021314\_01MSD

## Introduction

This data review covers 13 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_RD-63\_021314, TB\_RD-24\_021314, and TB\_PZ-108\_021314 were identified as trip blanks. No volatile contaminants were found.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	PZ-109_021314_01A PZ-108_021314_01 PZ-122_021314_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	PZ-109_021314_01A PZ-108_021314_01 PZ-122_021314_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-91_021314_01	1,2-Dichloroethane-d4 Toluene-d8	123 (80-120) 112 (88-110)	Trichloroethene	J (all detects)	A
RD-63_021314_01	Toluene-d8	113 (88-110)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-63_021314_01MS/MSD (RD-63_021314_01)	1,1,2-Trichloroethane	-	70 (73-135)	-	J (all detects)	A
	1,1-Dichloroethane	-	68 (75-135)	-	UJ (all non-detects)	
	1,1-Dichloroethene	-	67 (71-136)	-		
	1,2-Dichloroethane	-	65 (70-135)	-		
	Benzene	-	69 (74-135)	-		
	Chloroform	-	68 (76-120)	-		
	cis-1,2-Dichloroethene	-	69 (73-135)	-		
	Methylene chloride	-	53 (54-141)	-		
	m,p-Xylenes	-	70 (74-135)	-		
	o-Xylene	-	72 (73-135)	-		
	trans-1,2-Dichloroethene	-	74 (75-135)	-		
	Trichloroethene	67 (73-135)	43 (73-135)	-		

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.



## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52127-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

## XIV. System Performance

Raw data were not reviewed for this SDG.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52127-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52127-1	RD-91_021314_01	Trichloroethene	J (all detects)	A	Surrogate spikes (%R) (S)
280-52127-1	RD-63_021314_01	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-52127-1	RD-63_021314_01	1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene 1,2-Dichloroethane Benzene Chloroform cis-1,2-Dichloroethene Methylene chloride m,p-Xylenes o-Xylene trans-1,2-Dichloroethene Trichloroethene	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-52127-1	RD-19_021314_01 RD-91_021314_01 RD-63_021314_01 TB_RD-63_021314 PZ-109_021314_01A RD-24_021314_01 TB_RD-24_021314 PZ-108_021314_01 TB_PZ-108_021314 PZ-122_021314_01 RD-96_021314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

LDC #: 31438B1a  
 SDG #: 280-52127-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2/16/14  
 Page: 1 of 1  
 Reviewer: JNC  
 2nd Reviewer:

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 2/13/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	* TB = 4, 7, 9    FB = FB-021214-19 (280-52081-1) EB = EB-RD-07-025714 (280-51958-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-19_021314_01	11	RD-96_021314_01	21	MB 280-213730/5	31	
2	RD-91_021314_01	12	RD-63_021314_01MS	22	- 213573/6	32	
3	RD-63_021314_01	13	RD-63_021314_01MSD	23	↓ - 213922/5	33	
4	TB_RD-63_021314	14		24		34	
5	PZ-109_021314_01A	15		25		35	
6	RD-24_021314_01	16		26		36	
7	TB_RD-24_021314	17		27		37	
8	PZ-108_021314_01	18		28		38	
9	TB_PZ-108_021314	19		29		39	
10	PZ-122_021314_01	20		30		40	

## TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

\* = System performance check compounds (SPCC) for RRF ; \*\* = Calibration check compounds (CCC) for %RSD.







## Quality Control Results

Client: MWH Americas Inc

Job Number: 280-52127-1

**Matrix Spike/**

**Matrix Spike Duplicate Recovery Report - Batch: 280-213730**

**Method: 8260B**

**Preparation: 5030B**

MS Lab Sample ID: 280-52127-4	Analysis Batch: 280-213730	Instrument ID: VMS_MS1
Client Matrix: Water	Prep Batch: N/A	Lab File ID: MS2381.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 02/19/2014 2150		Final Weight/Volume: 20 mL
Prep Date: 02/19/2014 2150		20 mL
Leach Date: N/A		

MSD Lab Sample ID: 280-52127-4	Analysis Batch: 280-213730	Instrument ID: VMS_MS1
Client Matrix: Water	Prep Batch: N/A	Lab File ID: MS2382.D
Dilution: 1.0	Leach Batch: N/A	Initial Weight/Volume: 20 mL
Analysis Date: 02/19/2014 2212		Final Weight/Volume: 20 mL
Prep Date: 02/19/2014 2212		20 mL
Leach Date: N/A		

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
1,1,1-Trichloroethane		81	72	70 - 135	11	20	
1,1,2-Trichloroethane	U	78	70	73 - 135	10	21	F1
1,1,2-Trichloro-1,2,2-trifluoroethane		80	72	43 - 162	11	30	J
1,1-Dichloroethane	I	78	68	75 - 135	12	21	F1
1,1-Dichloroethene	H	75	67	71 - 136	9	20	F1
1,2-Dichloroethane	L	76	65	70 - 135	16	20	F1
Acetone		89	70	50 - 156	24	41	
Benzene	V	78	69	74 - 135	12	20	F1
Carbon tetrachloride		82	73	67 - 135	12	21	
Chloroform	k	79	68	76 - 120	15	20	F1
cis-1,2-Dichloroethene	AAA	86	69	73 - 135	12	20	F1
Ethylbenzene		80	72	72 - 120	11	26	
Methyl ethyl ketone (MEK)		79	67	44 - 150	16	32	
Methylene Chloride	E	62	53	54 - 141	16	20	J
m-Xylene & p-Xylene	RRR	80	70	74 - 135	12	20	F1
o-Xylene	SSS	81	72	73 - 135	12	20	F1
Tetrachloroethene		84	74	70 - 135	13	20	
Toluene		90	79	73 - 120	13	20	
trans-1,2-Dichloroethene	PPP	80	74	75 - 135	7	24	F1
Trichloroethene	S	67	43	73 - 135	13	20	F1
Trichlorofluoromethane		107	92	47 - 150	15	20	
Vinyl chloride		108	95	40 - 144	13	24	

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103	92	70 - 127
4-Bromofluorobenzene (Surr)	109	95	78 - 120
Dibromofluoromethane (Surr)	105	95	77 - 120
Toluene-d8 (Surr)	97	89	80 - 125



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 13, 2014

**LDC Report Date:** March 19, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52127-1

**Sample Identification**

RD-63\_021314\_01

TB\_RD-63\_021314

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Sample TB\_RD-63\_021314 was identified as a trip blank. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52127-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 280-52127-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-52127-1	RD-63_021314_01 TB_RD-63_021314	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

LDC #: 31438B1b  
 SDG #: 280-52127-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3/16/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer:

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/13/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	1D	TB = 2

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: Water

1	RD-63_021314_01	11	MB 286-213964/S	21		31	
2	TB_RD-63_021314	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Metals  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52127-1

### Sample Identification

RD-19\_021314\_01  
RD-91\_021314\_01  
RD-63\_021314\_01  
PZ-109\_021314\_01A  
RD-24\_021314\_01  
PZ-108\_021314\_01  
PZ-122\_021314\_01  
RD-96\_021314\_01  
RD-19\_021314\_01F  
RD-91\_021314\_01F  
RD-63\_021314\_01F  
PZ-109\_021314\_01AF  
RD-24\_021314\_01F  
PZ-108\_021314\_01F  
PZ-122\_021314\_01F  
RD-96\_021314\_01F  
RD-19\_021314\_01FMS  
RD-19\_021314\_01FMDS  
RD-63\_021314\_01FMS  
RD-63\_021314\_01FMDS

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 20 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010B and 6020 for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS tune data were not reviewed for Level V.

## III. Calibration

Calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Thallium	0.0000510 mg/L	RD-19_021314_01F RD-91_021314_01F RD-63_021314_01F PZ-109_021314_01AF RD-24_021314_01F PZ-108_021314_01F PZ-122_021314_01F RD-96_021314_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-19_021314_01F	Thallium	0.000064 mg/L	0.000064U mg/L
RD-91_021314_01F	Thallium	0.00021 mg/L	0.00021U mg/L
RD-63_021314_01F	Thallium	0.000061 mg/L	0.000061U mg/L

Samples EB\_RD-07\_020714 and EB\_RD-07\_020714F (from SDG 280-5198-1) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Antimony Chromium Copper Zinc	0.00044 mg/L 0.00061 mg/L 0.00078 mg/L 0.0028 mg/L	PZ-109_021314_01A PZ-108_021314_01 PZ-122_021314_01
EB_RD-07_020714F	2/7/14	Antimony Copper Zinc	0.00045 mg/L 0.00080 mg/L 0.0026 mg/L	PZ-109_021314_01AF PZ-108_021314_01F PZ-122_021314_01F

Samples FB\_021214\_19 and FB\_021214\_19F (both from SDG 280-52081-1) were identified as field blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Nickel	0.00041 mg/L	PZ-109_021314_01A PZ-108_021314_01 PZ-122_021314_01
FB_021214_19F	2/12/14	Nickel	0.00048 mg/L	PZ-109_021314_01AF PZ-108_021314_01F PZ-122_021314_01F

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
PZ-109_021314_01A	Chromium	0.00084 mg/L	0.00084U mg/L
PZ-108_021314_01	Chromium Copper Nickel Zinc	0.0015 mg/L 0.00086 mg/L 0.0016 mg/L 0.0076 mg/L	0.0015U mg/L 0.00086U mg/L 0.0016U mg/L 0.0076U mg/L
PZ-122_021314_01	Chromium Copper Zinc	0.00071 mg/L 0.00059 mg/L 0.0048 mg/L	0.00071U mg/L 0.00059U mg/L 0.0048U mg/L
PZ-108_021314_01F	Nickel Zinc	0.00077 mg/L 0.0031 mg/L	0.00077U mg/L 0.0031U mg/L
PZ-122_021314_01F	Nickel Zinc	0.0019 mg/L 0.0027 mg/L	0.0019U mg/L 0.0027U mg/L

## V. ICP Interference Check Sample (ICS) Analysis

Interference check sample analysis data were not reviewed for Level V.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. For RD-19\_021314\_01FMS/MSD, no data were qualified for Zinc percent recoveries outside the QC limits since the parent sample results were greater than 4X the spike concentration.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

Internal standards data were not reviewed for Level V.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52127-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-52127-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52127-1	RD-19_021314_01 RD-91_021314_01 RD-63_021314_01 PZ-109_021314_01A RD-24_021314_01 PZ-108_021314_01 PZ-122_021314_01 RD-96_021314_01 RD-19_021314_01F RD-91_021314_01F RD-63_021314_01F PZ-109_021314_01AF RD-24_021314_01F PZ-108_021314_01F PZ-122_021314_01F RD-96_021314_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-52127-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52127-1	RD-19_021314_01F	Thallium	0.000064U mg/L	A	B
280-52127-1	RD-91_021314_01F	Thallium	0.00021U mg/L	A	B
280-52127-1	RD-63_021314_01F	Thallium	0.000061U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-52127-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52127-1	PZ-109_021314_01A	Chromium	0.00084U mg/L	A	F
280-52127-1	PZ-108_021314_01	Chromium Copper Nickel Zinc	0.0015U mg/L 0.00086U mg/L 0.0016U mg/L 0.0076U mg/L	A	F
280-52127-1	PZ-122_021314_01	Chromium Copper Zinc	0.00071U mg/L 0.00059U mg/L 0.0048U mg/L	A	F
280-52127-1	PZ-108_021314_01F	Nickel Zinc	0.00077U mg/L 0.0031U mg/L	A	F

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Modified Final Concentration</b>	<b>A or P</b>	<b>Code</b>
280-52127-1	PZ-122_021314_01F	Nickel Zinc	0.0019U mg/L 0.0027U mg/L	A	F

LDC #: 31438B4  
 SDG #: 280-52127-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-13-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer:

*gmh*

**METHOD:** Metals (EPA SW 846 Method ~~6020A/7000~~) 6010B/6020

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-13-14
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/MSD #17/18: Zn-4x
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC		
XI.	ICP Serial Dilution	A✓	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	SW	FB = FB_021214-19 (SDG: 280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

FB = FB\_021214-19F ( ↓ )

EB = EB-RD-07-020714 (SDG: 280-51958-1)  
 EB = EB-RD-07-020714F ( ↓ )

Validated Samples:

*all water*

1	RD-19_021314_01	11	RD-63_021314_01F	21		31	
2	RD-91_021314_01	12	PZ-109_021314_01AF	22		32	
3	RD-63_021314_01	13	RD-24_021314_01F	23		33	
4	PZ-109_021314_01A	14	PZ-108_021314_01F	24		34	
5	RD-24_021314_01	15	PZ-122_021314_01F	25		35	
6	PZ-108_021314_01	16	RD-96_021314_01F	26		36	
7	PZ-122_021314_01	17	RD-19_021314_01FMS	27		37	
8	RD-96_021314_01	18	RD-19_021314_01FMSD	28		38	
9	RD-19_021314_01F	19	RD-63_021314_01FMS	29		39	PBW1
10	RD-91_021314_01F	20	RD-63_021314_01FMSD	30		40	PBW2

Notes: Samples appended with "F" were analyzed as dissolved



LDC #: 31438B4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 9-16 Qual: U (B)

Page: 1 of 1

Reviewer: MG

2nd Reviewer:

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	9	10	11						
TI		0.0000510		0.00026	0.000064	0.00021	0.000061						

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.



**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Trace Metals (EPA SW846 6010B/7000)

N/A Were field blanks identified in this SDG?

N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L. **Associated sample units:** mg/L

**Sampling date:** see below Soil factor applied NA

**Field blank type:** (circle one)  Field Blank /  Rinsate /  Other: EB Associated Samples: 4,6,7 Qual: U (F)

Analyte	Blank ID	Blank ID	Action Level	4	6	7	Sample Identification								
	FB_021214_19 sampled: 2/12/14	EB_RD-07_020714 sampled: 2/7/14													
Sb		0.00044	0.0022												
Cr		0.00061	0.0030	0.00084	0.0015	0.00071									
Cu		0.00078	0.0039		0.00086	0.00059									
Ni	0.00041		0.0020		0.0016										
Zn		0.0028	0.0140		0.0076	0.0048									

**Blank units:** mg/L. **Associated sample units:** mg/L

**Sampling date:** see below Soil factor applied NA

**Field blank type:** (circle one)  Field Blank /  Rinsate /  Other: EB Associated Samples: 12,14,15 Qual: U (F)

Analyte	Blank ID	Blank ID	Action Level	14	15	Sample Identification									
	FB_021214_19F sampled: 2/12/14	EB_RD-07_020714F sampled: 2/7/14													
Sb		0.00045	0.0022												
Cu		0.00080	0.0040												
Ni	0.00048		0.0024	0.00077	0.0019										
Zn		0.0026	0.0130	0.0031	0.0027										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 13, 2014

**LDC Report Date:** March 20, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52127-1

**Sample Identification**

RD-19\_021314\_01  
RD-91\_021314\_01  
RD-63\_021314\_01  
PZ-109\_021314\_01A  
PZ-108\_021314\_01  
PZ-122\_021314\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate as Nitrogen.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Fluoride	0.0647 mg/L	PZ-108_021314_01

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

Samples EB\_RD-07\_020714 (from SDG 280-51958-1) and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52127-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Data Qualification Summary - SDG 280-52127-1**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-52127-1	RD-19_021314_01 RD-91_021314_01 RD-63_021314_01 PZ-109_021314_01A PZ-108_021314_01 PZ-122_021314_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

LDC #: 31438B6  
 SDG #: 280-52127-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-13-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JG

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-13-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	SW	
V	Matrix Spike/Matrix Spike Duplicates	N	client specified
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	ND	FB = FB-021214-19 (SDG: 280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB = EB-RD-07-020714 (SDG: 280-51958-1)

EB = EB-RD-109-021014 (SDG: 280-51987-1)

Validated Samples:  
 all water

1	RD-19_021314_01	11		21		31	
2	RD-91_021314_01	12		22		32	
3	RD-63_021314_01	13		23		33	
4	PZ-109_021314_01A	14		24		34	
5	PZ-108_021314_01	15		25		35	
6	PZ-122_021314_01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19	1 PBW 1	29		39	
10		20	2 PBW 2	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Inorganics, Method 300.0

**Conc. units:** mg/L **Associated Samples:** 5 (>5X)

Analyte	Blank ID	Blank ID	Blank Action Limit	Associated Samples						
	PB	ICB/CCB (mg/L)								
F	0.0647		0.324							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52127-1

**Sample Identification**

RD-91\_021314\_01  
TB\_RD-91\_021314  
RD-96\_021314\_01  
TB\_RD-96\_021314  
RD-96\_021314\_01MS  
RD-96\_021314\_01MSD

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Calibration Verification

Calibration verification data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Samples TB\_RD-91\_021314 and TB\_RD-96\_021314 were identified as trip blanks. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-96_021314	2/13/14	TPH as gasoline (C6-C12)	15 ug/L	RD-96_021314_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-96_021314_01	TPH as gasoline (C6-C12)	19 ug/L	100U ug/L

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-91_021314_01	a,a,a-Trifluorotoluene	296 (82-110)	All TCL compounds	J (all detects)	A

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Target Compound Identification

Raw data were not reviewed for this SDG.

## IX. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52127-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. System Performance

Raw data were not reviewed for this SDG.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 280-52127-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52127-1	RD-91_021314_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-52127-1	RD-91_021314_01 TB_RD-91_021314 RD-96_021314_01 TB_RD-96_021314	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 280-52127-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52127-1	RD-96_021314_01	TPH as gasoline (C6-C12)	100U ug/L	A	T

LDC #: 31438B7  
 SDG #: 280-52127-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 3/16/14  
 Page: 1 of 1  
 Reviewer: JK  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/13/14
II	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V	Surrogate recovery	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	KCS 10
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	SW	TB = 2 4

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-91_021314_01	11	MB 280-213671/5	21	31
2	TB_RD-91_021314	12		22	32
3	RD-96_021314_01	13		23	33
4	TB_RD-96_021314	14		24	34
5	RD-96_021314_01MS	15		25	35
6	RD-96_021314_01MSD	16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** March 19, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52127-1

**Sample Identification**

RD-91\_021314\_01  
RD-96\_021314\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
LCS/D 280-213349/2,3-B (All samples in SDG 280-52127-1)	TPH as extractables (C8-C30)	-	79 (80-120)	-	J (all detects) UJ (all non-detects)	P

### **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

### **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52127-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. System Performance**

Raw data were not reviewed for this SDG.

### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-52127-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52127-1	RD-91_021314_01 RD-96_021314_01	TPH as extractables (C8-C30)	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52127-1	RD-91_021314_01 RD-96_021314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

LDC #: 31438B8  
 SDG #: 280-52127-1  
 Laboratory: Test America Inc.

## VALIDATION COMPLETENESS WORKSHEET

Level V

Date: 3/16/14  
 Page: 1 of 1  
 Reviewer: SW  
 2nd Reviewer:

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 2/13/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	SW	LCS / D
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

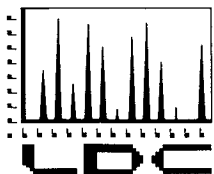
Water

1	RD-91_021314_01	11	MB 280-213349/1-B	21		31	
2	RD-96_021314_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_







# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 24, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

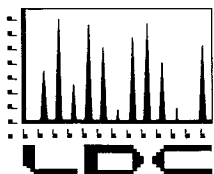
Enclosed is the final validation report for the fraction listed below. This SDG was received on March 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31444:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14B067	Perchlorate

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, EPA 540-R-10-011, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007



Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** March 21, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14B067

**Sample Identification**

RD-57\_021214\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures for all samples were reported at room temperature upon receipt by the laboratory. The samples were received the same day they were collected. No data was qualified based on the cooler temperature.

## **II. LC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Calibration verification data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 14B067	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. System Performance

Raw data were not reviewed for this SDG.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-57\_021214\_03 and RD-57\_021214\_0 (from SDG 280-52081-1) were identified as split samples. No perchlorate was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 14B067**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
14B067	RD-57_021214_03	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 14B067**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 14B067**

No Sample Data Qualified in this SDG



**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 2/12/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	N	Not req'd
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS (b)
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	A	
XV.	Field duplicates / Split	ND	S = 1, RD-57_021214_01 (280-52081-1)
XVI.	Field blanks	N	

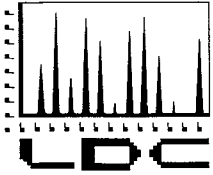
Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

*water*

1	RD-57_021214_03	11	MBU (IN)	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 27, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 10, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31453:**

<u>SDG #</u>	<u>Fraction</u>
280-52249-1	Volatiles, Wet Chemistry, Metals
280-52294-1	
280-52342-1	

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31453 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		Metals (6020)		Diss. Metals (6020)		F (300.0)		CLO <sub>4</sub> (314.0)																												
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	
Matrix:	Water/Soil:																																							
A	280-52249-1	03/10/14	03/31/14	1	0	-	-	-	-	0	0	0	0																											
A	280-52249-1	03/10/14	03/31/14	2	0	-	-	-	-	2	0	2	0																											
B	280-52294-1	03/10/14	03/31/14	1	0	0	0	0	0	-	-	-	-																											
B	280-52294-1	03/10/14	03/31/14	2	0	2	0	2	0	-	-	-	-																											
C	280-52342-1	03/10/14	03/31/14	5	0	5	0	5	0	-	-	-	-																											
C	280-52342-1	03/10/14	03/31/14	1	0	0	0	0	0	-	-	-	-																											
Total				12	0	7	0	7	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52249-1

**Sample Identification**

OS-10\_021814\_01\*\*  
OS-10\_021814\_36\*\*  
TB\_OS-10\_021814

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_OS-10\_021814 was identified as a trip blank. No volatile contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits for samples on which a Level IV review was performed. Internal standards data were not evaluated for the samples reviewed by Level V criteria.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XII. Compound Quantitation**

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 280-52249-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

Samples OS-10\_021814\_01\*\* and OS-10\_021814\_36\*\* were identified as field duplicates. No volatiles were detected in any of the samples.

Samples OS-10\_021814\_03 (from SDG 14B107) and OS-10\_021814\_01\*\* were identified as split samples. No volatiles were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52249-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52249-1	OS-10_021814_01** OS-10_021814_36** TB_OS-10_021814	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52249-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52249-1**

No Sample Data Qualified in this SDG

LDC #: 31453A1a

## VALIDATION COMPLETENESS WORKSHEET

Date: 3/14/14

SDG #: 280-52249-1

Level IV/V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: NT2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/18/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD ≤ 30/15% <span style="float:right">r2</span>
IV.	Continuing calibration/ICV	A	CV/1W ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / split	ND	D = 1,2 S = 1, OS-10-021814-03
XVII.	Field blanks	ND	TB = 3 (14B107)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	OS-10_021814_01 **	11	MB 280-24501/S	21		31	
2	OS-10_021814_36 **	12		22		32	
3	TB_OS-10_021814	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?	/			
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?	/			
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) > 0.05?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	/	/		
Target compounds were detected in the field duplicates.		/		
XVII. Field blanks				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound

S = Standard deviation of the RRFs

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC MSV Z	2/3/2014	Toluene (IS1)	1.1272	1.1272	1.1309	1.1309	2.8	2.8
			Ethylbenzene (IS2)	1.7555	1.7555	1.6811	1.6811	7.4	7.4



LDC #: 31453 A1a

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd reviewer: F

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	10.0	9.25	93	93	0
1,2-Dichloroethane-d4	↓	8.49	85	85	↓
Toluene-d8	↓	9.49	95	95	↓
Bromofluorobenzene	↓	9.65	97	97	↓

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					



LDC #: 31453 A1a

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* SSC/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

LCSC = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280 - 214501 / 4

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.0	NA	4.27	NA	85	85				
Trichloroethene			4.45		89	89				
Benzene			4.31		86	86				
Toluene			4.33		87	87				
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 18, 2014

**LDC Report Date:** March 24, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52249-1

**Sample Identification**

OS-10\_021814\_01

OS-10\_021814\_36

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and EPA Method 314.0 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52249-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples OS-10\_021814\_01 and OS-10\_021814\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	OS-10_021814_01	OS-10_021814_36			
Fluoride	0.50	0.48	4 (≤35)	-	-

Samples OS-10\_021814\_03 (from SDG 14B107) and OS-10\_021814\_01 were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	OS-10_021814_01	OS-10_021814_03			
Fluoride	0.50	0.556	11 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-52249-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52249-1	OS-10_021814_01 OS-10_021814_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-52249-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-52249-1**

No Sample Data Qualified in this SDG

LDC #: 31453A6

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-18-14

SDG #: 280-52249-1

Level ~~V~~ IV

Page: 1 of 1

Laboratory: Test America Inc.

gmk

Reviewer: MG

2nd Reviewer: [Signature]

METHOD: Fluoride (EPA Method 300.0), Perchlorate (EPA Method 314.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-18-14
II	Initial calibration	A <del>X</del>	
III.	Calibration verification	A <del>X</del>	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	client specified
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	LCS / LCSD
VIII.	Sample result verification	A <del>X</del>	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 1+2 split = 1 + OS-10_021814_03
XI	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SDG: 14B107

Validated Samples:

all water

1	OS-10_021814_01	11		21		31	
2	OS-10_021814_36	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Method: Inorganics (EPA Method *see cover*)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL (≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were < 5X the CRDL.			✓	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	1	2		
Fluoride	0.50	0.48	4	

Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	1	OS-10_021814_03		
Fluoride	0.50	0.556	11	

LDC #: 31453A6

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: R

**Method:** Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of C104 was recalculated. Calibration date: 12-20-13

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where,

Found = concentration of each analyte measured in the analysis of the ICV or CCV solution

True = concentration of each analyte in the ICV or CCV source

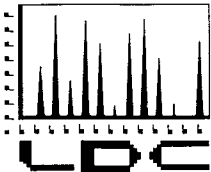
Type of analysis	Analyte	Standard	Conc (ug/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or $r^2$	r or $r^2$	
Initial calibration	C104	s1	1	32064	0.999856	1.000000	Y
		s2	2	58037			
		s3	4	85179			
		s4	10	260398			
		s5	25	718297			
		s6	50	1455316			
		s7	100	3076011			
Calibration verification	F	<sup>1129</sup> ICV	4.09 (mg/L)	4.00 (mg/L)	102	102	↓ ✓
Calibration verification	C104	<sup>1907</sup> CCV	85.3 (mg/L)	75.0 (mg/L)	114	114	
Calibration verification	-	-	-	-	-	-	

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.









# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 27, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 10, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31453:

<u>SDG #</u>	<u>Fraction</u>
280-52249-1	Volatiles, Wet Chemistry, Metals
280-52294-1	
280-52342-1	

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 19, 2014

**LDC Report Date:** March 24, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level IV & V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52294-1

**Sample Identification**

SP-900A\_021914\_01\*\*

TB\_SP-900A\_021914

SP-900B\_021914\_01\*\*

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_SP-900A\_021914 was identified as a trip blank. No volatile contaminants were found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

All internal standard areas and retention times were within QC limits for samples on which a Level IV review was performed. Internal standards data were not evaluated for the samples reviewed by Level V criteria.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XII. Compound Quantitation**

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52294-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52294-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52294-1	SP-900A_021914_01** TB_SP-900A_021914 SP-900B_021914_01**	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52294-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52294-1**

No Sample Data Qualified in this SDG



LDC #: 31453B1a  
 SDG #: 280-52294-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV/V

Date: 3/16/14  
 Page: 1 of 1  
 Reviewer: JL  
 2nd Reviewer: JL

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/19/14</u>
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD $\leq$ 30/15 % $r^2$
IV.	Continuing calibration/ICV	A	CV/IV $\leq$ 20 %
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
level IV \*\* Water

1	SP-900A_021914_01 **	11	MB 280-214319/6	21	31
2	TB_SP-900A_021914	12		22	32
3	SP-900B_021914_01 本瓶	13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40

LDC #: 31453 BIC

**VALIDATION FINDINGS CHECKLIST**

Page: 1 of 2  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**Method:** Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?	/			
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?	/			
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.			/	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/	/		
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively Identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
XVII. Field blanks				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound

S = Standard deviation of the RRFs

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC MSV G	2/11/2014	Toluene (IS1)	1.0718	1.0718	1.0936	1.0936	3.6	3.6
			Ethylbenzene (IS2)	1.7654	1.7654	1.7967	1.7968	3.4	3.4



LDC #: 31453 B1a

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID: # /

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	10.0	100	100	100	0
1,2-Dichloroethane-d4	↓	9.92	99	99	↓
Toluene-d8	↓	10.9	109	109	↓
Bromofluorobenzene	↓	11.3	113	113	↓

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 31453 B1a

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* SSC/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: LC 280 - 214319 / 4

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.0	NA	5.09	NA	102	102				
Trichloroethene	↓	↓	5.16	↓	103	103				
Benzene	↓	↓	5.20	↓	104	104				
Toluene	↓	↓	5.22	↓	104	104				
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

- Y N N/A Were all reported results recalculated and verified for all level IV samples?  
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration =  $\frac{(A_x)(I_s)(DF)}{(A_s)(RRF)(V_o)(\%S)}$

$A_x$  = Area of the characteristic ion (EICP) for the compound to be measured  
 $A_s$  = Area of the characteristic ion (EICP) for the specific internal standard  
 $I_s$  = Amount of internal standard added in nanograms (ng)  
 RRF = Relative response factor of the calibration standard.  
 $V_o$  = Volume or weight of sample pruged in milliliters (ml) or grams (g).  
 Df = Dilution factor.  
 %S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. MD, \_\_\_\_\_:  
ICS Toxene

$$\text{Conc.} = \frac{(399954)(12.5)}{(875493)(1.0936)} = 5.22 \text{ ug/L}$$

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration ( ) ( )	Qualification
			5.22		



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 19, 2014

**LDC Report Date:** March 25, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52294-1

### Sample Identification

SP-900A\_021914\_01  
SP-900B\_021914\_01  
SP-900A\_021914\_01F  
SP-900B\_021914\_01F  
SP-900B\_021914\_01MS  
SP-900B\_021914\_01MSD  
SP-900B\_021914\_01FMS  
SP-900B\_021914\_01FMSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6020 for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

## III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metals were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Antimony	0.518 ug/L	SP-900A_021914_01 SP-900B_021914_01
PB (prep blank)	Zinc	0.00202 mg/L	SP-900A_021914_01 SP-900B_021914_01
ICB/CCB	Thallium	0.0770 ug/L	SP-900A_021914_01
ICB/CCB	Beryllium Silver Thallium	0.0860 ug/L 0.100 ug/L 0.0960 ug/L	SP-900B_021914_01
ICB/CCB	Thallium	0.0850 ug/L	SP-900A_021914_01F SP-900B_021914_01F

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SP-900B_021914_01	Zinc Thallium	0.0023 mg/L 0.000066 mg/L	0.0023U mg/L 0.000066U mg/L
SP-900A_021914_01F	Thallium	0.00012 mg/L	0.00012U mg/L

No field blanks were identified in this SDG.

#### V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

#### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

#### XI. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52294-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

## **XII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-52294-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52294-1	SP-900A_021914_01 SP-900B_021914_01 SP-900A_021914_01F SP-900B_021914_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-52294-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52294-1	SP-900B_021914_01	Zinc Thallium	0.0023U mg/L 0.000066U mg/L	A	B
280-52294-1	SP-900A_021914_01F	Thallium	0.00012U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-52294-1**

No Sample Data Qualified in this SDG

LDC #: 31453B4

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-18-14

SDG #: 280-52294-1

Level IV

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: MG  
2nd Reviewer: f

**METHOD:** Metals (EPA SW 846 Method 6020A) gms

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-19-14
II.	ICP/MS Tune	A✓	
III.	Calibration	A✓	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A✓	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	A✓	
<del>X.</del>	<del>Furnace Atomic Absorption QC</del>		
XI.	ICP Serial Dilution	A✓	
XII.	Sample Result Verification	A✓	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
all water

1	SP-900A_021914_01	11		21		31
2	SP-900B_021914_01	12		22		32
3	SP-900A_021914_01F	13		23		33
4	SP-900B_021914_01F	14		24		34
5	SP-900B_021914_01MS	15		25		35
6	SP-900B_021914_01MSD	16		26		36
7	SP-900B_021914_01FMS	17		27		37
8	SP-900B_021914_01FMDS	18		28		38
9		19		29	1 PBW 1	39
10		20		30	2 PBW 2	40

Notes: Samples appended with "F" were analyzed as dissolved

**Method:Metals (EPA SW 846 Method 6010/7000/6020)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	✓			
<b>III. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients $> 0.995$ ?	✓			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL(\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	✓			
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			



Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
<b>IX. ICP Serial Dilution</b>				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31453B4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1,2 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	2									
Sb			0.518	0.0026										
Zn		0.00202		0.0101	0.0023									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1 (ND)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual.									
Tl			0.0770	0.00038										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 2 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	2									
Be			0.0860	0.00043										
Ag			0.100	0.00050										
Tl			0.0960	0.00048	0.000066									

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 3,4 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	3									
Tl			0.0850	0.00042	0.00012									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 31453B4

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated	Reported	Acceptable (Y/N)
					%R	%R	
	ICP (Initial calibration)						
1107 ICV	ICP/MS (Initial calibration)	Be	38.721	40.0	97	97	Y
	CVAA (Initial calibration)						↓
	ICP (Continuing calibration)						
1515 CCV	ICP/MS (Continuing calibration)	Tl	50.864	50.0	102	102	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31453B4

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: A

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration  
 D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (mg/L)  
 SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
1144 ICSAB	ICP interference check	Cu	98.964 (mg/L)	100 (mg/L)	99	99	Y
1455 LCS	Laboratory control sample	Zn	0.0435 (mg/L)	0.0400 (mg/L)	109	109	↓
1530 5	Matrix spike	Sn	(SSR-SR) 0.0404 (mg/L)	0.0400 (mg/L)	101	101	
1530/1534 5/6	Duplicate	As	0.0413 (mg/L)	0.0420 (mg/L)	2	2	
1522 / 1526 2	ICP serial dilution	Ba	0.0150 (mg/L)	0.0158 (mg/L)	5.3	5.5	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
- N N/A Are all detection limits below the CRDL?

Detected analyte results for # 1, V were recalculated and verified using the following equation:

Concentration =  $\frac{(RD)(FV)(Dil)}{(In. Vol.)}$

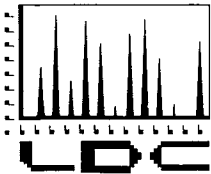
Recalculation:

RD = Raw data concentration  
 FV = Final volume (ml)  
 In. Vol. = Initial volume (ml) or weight (G)  
 Dil = Dilution factor

$$\frac{(0.585 \mu\text{g/L})(0.050 \text{L})(1 \text{mg}/1000 \mu\text{g})}{0.050} = 0.000585 \text{ mg/L}$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	1	V	0.00059	0.00058	Y
2	2	Co	0.014	0.014	↓
3	3	Ni	0.00066	0.00066	
4	4	Zn	0.0023	0.0023	

Note: \_\_\_\_\_



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 27, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 10, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31453:

<u>SDG #</u>	<u>Fraction</u>
280-52249-1	Volatiles, Wet Chemistry, Metals
280-52294-1	
280-52342-1	

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 20, 2014  
**LDC Report Date:** March 25, 2014  
**Matrix:** Water  
**Parameters:** Volatiles  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52342-1

### Sample Identification

SP-900C\_022014\_01\*\*  
SP-T02A\_022014\_01\*\*  
TB\_SP-T02A\_022014  
SP-T02B\_022014\_01\*\*  
SP-T02C\_022014\_01\*\*  
SP-T02D\_022014\_01\*\*

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/28/14	1,2-Dichloroethane	21.6	SP-T02C_022014_01** SP-T02D_022014_01** MB 280-215033/5	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/12/14	1,1,2-Trichloro-1,2,2-trifluoroethane	22.9	All samples in SDG 280-52342-1	J (all detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-215033/5	2/28/14	Methylene chloride	1.58 ug/L	SP-T02C_022014_01** SP-T02D_022014_01**

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Sample TB\_SP-T02A\_022014 was identified as a trip blank. No volatile contaminants were found.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
SP-T02D_022014_01**	1,2-Dichloroethane-d4	78 (80-120)	All TCL compounds	J (all detects) UJ (all non-detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a Level IV review was performed. Internal standards data were not evaluated for the samples reviewed by Level V criteria.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

### XII. Compound Quantitation

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-52342-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52342-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52342-1	SP-T02C_022014_01** SP-T02D_022014_01**	1,2-Dichloroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
280-52342-1	SP-900C_022014_01** SP-T02A_022014_01** TB_SP-T02A_022014 SP-T02B_022014_01** SP-T02C_022014_01** SP-T02D_022014_01**	1,1,2-Trichloro-1,2,2-trifluoroethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D) (C)
280-52342-1	SP-T02D_022014_01**	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
280-52342-1	SP-900C_022014_01** SP-T02A_022014_01** TB_SP-T02A_022014 SP-T02B_022014_01** SP-T02C_022014_01** SP-T02D_022014_01**	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52342-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52342-1**

No Sample Data Qualified in this SDG

LDC #: 31453C1a  
 SDG #: 280-52342-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV/V

Date: 2/16/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 2/20/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	2 RSD ≤ 30/15% r <sup>2</sup>
IV.	Continuing calibration/ICV	SW	CV/1CV ≤ 20%
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 3

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

\*\* level IV

Water

+	1	SP-900C_022014_01	**	11	1	MB 280-214479/5	21		31
+	2	SP-T02A_022014_01	**	12	✓	-215033/5	22		32
-	3	TB_SP-T02A_022014		13			23		33
+	4	SP-T02B_022014_01	**	14			24		34
+	5	SP-T02C_022014_01	**	15			25		35
-	6	SP-T02D_022014_01	**	16			26		36
	7			17			27		37
	8			18			28		38
	9			19			29		39
	10			20			30		40

voc's



**Method:** Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
<b>XI. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XII. Compound quantitation/RLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			/	
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

## TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

\* = System performance check compounds (SPCC) for RRF ; \*\* = Calibration check compounds (CCC) for %RSD.



LDC #: 31453C19

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?

Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 2/28/14

Conc. units: ug/l

Associated Samples: 5, 6 (NB)

Compound	Blank ID	Sample Identification							
	<u>MB 280-2150 3/5</u>								
<u>E</u>	<u>1.58</u>								

Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

$\%RSD = 100 * (S/X)$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound

S = Standard deviation of the RRFs

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC MSV M1	2/12/2014	Toluene (IS1)	1.2137	1.2137	1.1751	1.1751	6.4	6.4
			Ethylbenzene (IS2)	2.3585	2.3585	2.3731	2.3730	4.8	4.8

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

Where:  
 % Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound

Cx = Concentration of compound,  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
1	MS2634 GC MSV M1	2/25/2014	Toluene (IS1)	1.1751	1.2881	1.2881	9.6	9.6
			Ethylbenzene (IS2)	2.3731	2.3738	2.3738	0.0	0.0
2	MS2805 GC MSV M1	2/28/2014	Toluene (IS1)	1.1751	1.2907	1.2907	9.8	9.8
			Ethylbenzene (IS2)	2.3731	2.4515	2.4515	3.3	3.3



LDC #: 314539a

## VALIDATION FINDINGS WORKSHEET

### Surrogate Results Verification

Page: 1 of 1Reviewer: JVG2nd reviewer: g**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$ Where: SF = Surrogate Found  
SS = Surrogate SpikedSample ID: #1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	10.0	10.4	104	104	0
1,2-Dichloroethane-d4	↓	9.82	98	98	↓
Toluene-d8	↓	9.54	95	95	↓
Bromofluorobenzene	↓	9.85	98	98	↓

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 31453 CIA

## VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* SSC/SA

Where: SSC = Spiked sample concentration  
SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

LCSC = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280-214479/4

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.00	NA	4.48	NA	90	90				
Trichloroethene	↓	↓	4.19	↓	84	84				
Benzene	↓	↓	4.56	↓	91	91				
Toluene	↓	↓	5.12	↓	102	102				
Chlorobenzene	↓	↓		↓						

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 20, 2014

**LDC Report Date:** March 25, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52342-1

### Sample Identification

SP-900C\_022014\_01  
SP-T02A\_022014\_01  
SP-T02B\_022014\_01  
SP-T02C\_022014\_01  
SP-T02D\_022014\_01  
SP-900C\_022014\_01F  
SP-T02A\_022014\_01F  
SP-T02B\_022014\_01F  
SP-T02C\_022014\_01F  
SP-T02D\_022014\_01F  
SP-900C\_022014\_01MS  
SP-900C\_022014\_01MSD

Samples appended with "F" were analyzed for dissolved metals

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6020 for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

## III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Copper	0.000703 mg/L	SP-900C_022014_01 SP-T02A_022014_01 SP-T02B_022014_01 SP-T02C_022014_01 SP-T02D_022014_01
ICB/CCB	Thallium	0.0810 ug/L	SP-900C_022014_01
ICB/CCB	Beryllium Thallium	0.115 ug/L 0.0940 ug/L	SP-T02A_022014_01 SP-T02B_022014_01 SP-T02C_022014_01 SP-T02D_022014_01
ICB/CCB	Thallium	0.0850 ug/L	SP-900C_022014_01F SP-T02A_022014_01F SP-T02B_022014_01F SP-T02C_022014_01F SP-T02D_022014_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SP-900C_022014_01	Copper Thallium	0.0014 mg/L 0.000064 mg/L	0.0014U mg/L 0.000064U mg/L
SP-T02C_022014_01	Copper	0.0013 mg/L	0.0013U mg/L
SP-T02D_022014_01	Copper Beryllium	0.0011 mg/L 0.00011 mg/L	0.0011U mg/L 0.00011U mg/L
SP-T02A_022014_01	Beryllium Thallium	0.00019 mg/L 0.00015 mg/L	0.00019U mg/L 0.00015U mg/L
SP-900C_022014_01F	Thallium	0.000081 mg/L	0.000081U mg/L
SP-T02A_022014_01F	Thallium	0.000058 mg/L	0.000058U mg/L

No field blanks were identified in this SDG.

#### V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

#### VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### IX. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

#### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## **XI. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-52342-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

## **XII. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XIII. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-52342-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52342-1	SP-900C_022014_01 SP-T02A_022014_01 SP-T02B_022014_01 SP-T02C_022014_01 SP-T02D_022014_01 SP-900C_022014_01F SP-T02A_022014_01F SP-T02B_022014_01F SP-T02C_022014_01F SP-T02D_022014_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-52342-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52342-1	SP-900C_022014_01	Copper Thallium	0.0014U mg/L 0.000064U mg/L	A	B
280-52342-1	SP-T02C_022014_01	Copper	0.0013U mg/L	A	B
280-52342-1	SP-T02D_022014_01	Copper Beryllium	0.0011U mg/L 0.00011U mg/L	A	B
280-52342-1	SP-T02A_022014_01	Beryllium Thallium	0.00019U mg/L 0.00015U mg/L	A	B
280-52342-1	SP-900C_022014_01F	Thallium	0.000081U mg/L	A	B
280-52342-1	SP-T02A_022014_01F	Thallium	0.000058U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-52342-1**

No Sample Data Qualified in this SDG

LDC #: 31453C4  
 SDG #: 280-52342-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level *IV*

Date: 3-18-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: *[Signature]*

**METHOD:** Metals (EPA SW 846 Method 6020A) *gmk*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-20-14
II.	ICP/MS Tune	A <i>✓</i>	
III.	Calibration	A <i>✓</i>	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A <i>✓</i>	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	A <i>✓</i>	
<del>X.</del>	<del>Furnace Atomic Absorption QA</del>		
XI.	ICP Serial Dilution	A <i>✓</i>	
XII.	Sample Result Verification	A <i>✓</i>	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
*all water*

1	SP-900C_022014_01	11	SP-900C_022014_01MS	21		31	
2	SP-T02A_022014_01	12	SP-900C_022014_01MSD	22		32	
3	SP-T02B_022014_01	13		23		33	
4	SP-T02C_022014_01	14		24		34	
5	SP-T02D_022014_01	15		25		35	
6	SP-900C_022014_01F	16		26		36	
7	SP-T02A_022014_01F	17		27		37	
8	SP-T02B_022014_01F	18		28		38	
9	SP-T02C_022014_01F	19		29		39	1 PBW 1
10	SP-T02D_022014_01F	20		30		40	2 PBW 2

Notes: Samples appended with "F" were analyzed as dissolved

**Method:Metals (EPA SW 846 Method 6010/7000/6020)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
<b>III. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL (+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.	✓			
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
<b>IX. ICP Serial Dilution</b>				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31453C4  
 SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)  
 Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET  
 PB/ICB/CCB QUALIFIED SAMPLES  
 Soil preparation factor applied: NA  
 Associated Samples: 1-5 Qual: U (B)

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1	4	5						
Cu		0.000703		0.0035	0.0014	0.0013	0.0011						

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	1								
Tl			0.0810	0.00043	0.000064								

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2-5 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	2	5							
Be			0.115	0.00058	0.00019	0.00011							
Tl			0.0940	0.00047	0.00015								

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 6-10 Qual: U (B)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	6	7							
Tl			0.0850	0.00042	0.000081	0.000058							

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 31453C4

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated	Reported	Acceptable (Y/N)
					%R	%R	
	ICP (Initial calibration)						
<u>1001</u> <u>ICV</u>	ICP/MS (Initial calibration)	<u>Cd</u>	<u>40.543</u>	<u>40.0</u>	<u>101</u>	<u>101</u>	<u>Y</u>
	CVAA (Initial calibration)						↓
	ICP (Continuing calibration)						
<u>1534</u> <u>CCV</u>	ICP/MS (Continuing calibration)	<u>Se</u>	<u>48.912</u>	<u>50.0</u>	<u>98</u>	<u>98</u>	
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC # 31453C4

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: R

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$\text{RPD} = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration  
 D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (mg/L)  
 SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
1044 IC SAB	ICP interference check	As	97.194 (ug/L)	100 (ug/L)	97	97	Y
1449 LCS	Laboratory control sample	Cr	0.0378 (mg/L)	0.0400 (mg/L)	94	95	↓
1513 11	Matrix spike	Sb	(SSR-SR) 0.0387 (mg/L)	0.0400 (mg/L)	97	97	
1513 / 1517 11 / 12	Duplicate	Be	0.0402 (mg/L)	0.0421 (mg/L)	5	4	
1505 / 1509 1	ICP serial dilution	Co	0.1398 (mg/L)	0.1415 (mg/L)	1.2	1.2	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N/A Have results been reported and calculated correctly?
- Y N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
- Y N/A Are all detection limits below the CRDL?

Detected analyte results for # 1, As were recalculated and verified using the following equation:

Concentration =  $\frac{(RD)(FV)(Dil)}{(In. Vol.)}$

Recalculation:

$$\frac{(0.808 \text{ } \mu\text{g/L})(0.050 \text{ L})(1 \text{ mg}/1000 \text{ } \mu\text{g})}{0.050 \text{ L}} = 0.000808 \text{ mg/L}$$

- RD = Raw data concentration
- FV = Final volume (ml)
- In. Vol. = Initial volume (ml) or weight (G)
- Dil = Dilution factor

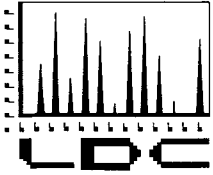
#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	1	As	0.00081	0.00081	Y
2	2	Be	0.00019	0.00018	
3	3	Ni	0.0021	0.0021	
4	4	Cd	0.00015	0.00015	
5	5	Cr	0.0028	0.0028	
6	6	Co	0.12	0.12	
7	7	Pb	0.00029	0.00029	
8	8	Zn	0.0035	0.0035	
9	9	Ba	0.028	0.028	
10	10	Ni	0.00052	0.00052	↓

Note: \_\_\_\_\_

## MWH – Boeing EDD Project Sheet

**Project:** Boeing **Project Manager:** Pei Geng/Ming Hwang  
**Contact:** Sarah Von Raesfeld (Request EDD), Catherine Henderson, Ron Bruns  
**Email:** [Sarah.E.VonRaesfeld@us.mwhglobal.com](mailto:Sarah.E.VonRaesfeld@us.mwhglobal.com), [Catherine.E.Henderson@us.mwhglobal.com](mailto:Catherine.E.Henderson@us.mwhglobal.com),  
[Ron.brunns@critigen.com](mailto:Ron.brunns@critigen.com)

1. EDD(s) received via Sarah- send email and she will send you a link to the website.
2. EDD(s) received in the form of Access Database
3. EDD Preparation via Access Database Template
  - a. Copy and paste excel sheet SS\_SDGs\_Date from previous job or template folder
  - b. Rename database to SS\_VR\_Date (Ex. SS\_VR20130401)
  - c. Make sure the right SDGs are in the table. Using Sample Delivery Group, delete the ones you don't need (The downloaded zip files usually contain many different SDGs from various projects).
    - i. Filter the SDGs and click the left corner button to highlight them all. Click press Delete button on keyboard. Click Yes.
4. EDD Entry *Qualifiers go into Project Qual Code column and Val Qual Code column*
  - a. Validation Level Include surrogates in updates to Validation Level. Use roman numerals (V or IV) column
  - b. Validator ("LDC")
  - c. Report Identifier
    - i. LDC# and letter (ex. 27089A)
  - d. Carry Overs
    - i. All J carry overs should be lab qualified TR/A
  - e. Reason Codes
    - i. Client Codes — *No commas in between.*
    - ii. Put in Validation Notes
  - f. Project Qualifier Field
    - i. Delete anything that does not have a "U" or "J" (Ex. JB→J)
  - g. Blank Result
    - i. Add a "B" in the Validation Notes for blank qualifiers
    - ii. If blanks result raised to reporting limit, type "B; value changed from \_\_ to \_\_U" and change results value manually. *- If more than one RC ~~A~~*
    - iii. The carryover J (TR) is removed for blank findings. *"BTS; value 000"*
  - h. Validator Qualifier Rationale
    - i. Put "A" and "P" in this field; "P" overrides "A"
  - i. Reasonableness Check
    - i. After applying all qualifiers, the Project Qualifier Code and Validator Qualifier Code must be the same for client samples.
5. Export in Access Database
6. Delivery:
  - a. Email to Sarah, cc: Catherine, Ron and [BoeingEDMS@critigen.com](mailto:BoeingEDMS@critigen.com)



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 27, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the final validation report for the fractions listed below. This SDG was received on March 11, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31463:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14A122	Wet Chemistry, Nitroglycerine & PETN, Explosives

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 25, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A122

### Sample Identification

RD-100\_012414\_03A  
RD-100\_012414\_03AMS  
RD-100\_012414\_03AMSD  
RD-100\_012414\_03ADUP

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Sulfite and Nitrite as Nitrogen and EPA SW 846 Method 7196A for Hexavalent Chromium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Sulfate	0.42 mg/L	All samples in SDG 14A122

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Sulfate	0.77 mg/L	All samples in SDG 14A122

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 14A122	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-100\_012414\_01A (from SDG 280-51492-1) and RD-100\_012414\_03A were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-100_012414_01A	RD-100_012414_03A			
Sulfate	640	611	5 (≤35)	-	-



**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 14A122**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
14A122	RD-100_012414_03A	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG

LDC #: 31463A6

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-18-14

SDG #: 14A122

Level V

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: MG

2nd Reviewer: [Signature]

Nitrite, Sulfate

MA

METHOD: Nitrite-N (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-24-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	split = 1 + RD-100_012414_01A (SDG: 280-51492-1)
XI.	Field blanks	SW	EB = EB_RD-100_012414 (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water

1	RD-100_012414_03A	11		21		31	
2	RD-100_012414_03AMS	12		22		32	
3	RD-100_012414_03AMSD	13		23		33	
4	RD-100_012414_03ADUP	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: \_\_\_\_\_



## VALIDATION FINDINGS WORKSHEET Field Blanks

**METHOD:** Inorganics, EPA Method See Cover

N/A Were field blanks identified in this SDG?  
 N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below Soil factor applied NA

**Field blank type:** (circle one)  Field Blank /  Rinsate /  Other EB Associated Samples: all (>5x)

Analyte	Blank ID	Blank ID	Action Limit	Sample Identification								
	FB_021214_19 sampled: 2/12/14	EB_RD- 100_012414 sampled: 1/24/14		No Qual								
SO4	0.77	0.42	3.85									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

2nd Reviewer: 

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	RD-100_012414_01A	1		
Sulfate	640	611	5	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 25, 2014

**Matrix:** Water

**Parameters:** Nitroglycerine & PETN

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A122

**Sample Identification**

RD-100\_012414\_03A

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8332 for Nitroglycerine and PETN.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No nitroglycerine or PETN was found in the method blanks.

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No nitroglycerine or PETN was found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No nitroglycerine or PETN was found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:



Sample	Finding	Flag	A or P
All samples in SDG 14A122	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### **X. System Performance**

Raw data were not reviewed for this SDG.

#### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-100\_012414\_01A (from SDG 280-51492-1) and RD-100\_012414\_03A were identified as split samples. No nitroglycerine or PETN was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Nitroglycerine & PETN - Data Qualification Summary - SDG 14A122**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
14A122	RD-100_012414_03A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Nitroglycerine & PETN - Laboratory Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Nitroglycerine & PETN - Field Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG

**METHOD:** HPLC Nitroglycerine & PETN (EPA SW 846 Method 8332)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	1 CS 16
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	S = 1 + RD-100_012414_01A (280-51492-1)
XIII.	Field blanks	ND	EB = EB RD-100_012414 ↓ FB = FB_021214_19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-100_012414_03A	11	MB/LIN	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: (Split lab <sup>reported</sup> ~~used~~ 8330A)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** March 25, 2014

**Matrix:** Water

**Parameters:** Explosives

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A122

**Sample Identification**

RD-100\_012414\_03A

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8330A for Explosives.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No explosive contaminants were found in the method blanks.

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No explosive contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No explosive contaminants were found.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

Raw data were not reviewed for this SDG.

## **IX. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A122	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### **X. System Performance**

Raw data were not reviewed for this SDG.

#### **XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XII. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-100\_012414\_01A (from SDG 280-51492-1) and RD-100\_012414\_03A were identified as split samples. No explosives were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Data Qualification Summary - SDG 14A122**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
14A122	RD-100_012414_03A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Laboratory Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Explosives - Field Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG



**METHOD:** HPLC Explosives (EPA SW 846 Method 8330A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/24/14
II.	Initial calibration	N	
III.	Calibration verification/ICV	N	
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS / D
VIII.	Target compound identification	N	
IX.	Compound quantitation/RL/LOQ/LODs	N	
X.	System Performance	N	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	S = 1 + RD-100-012414-01A (280-51492-1)
XIII.	Field blanks	ND	EB = EB-RR-100-012414 ↓ FB = FB-021214-19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

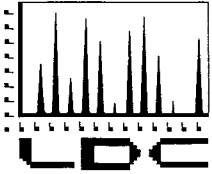
D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD-100_012414_03A	11	MBLKW	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

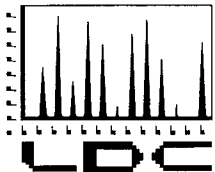
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 19, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31505:

<u>SDG #</u>	<u>Fraction</u>
280-51989-1/14-02054 14B107A/343195	Gamma Spectroscopy, Isotopic Plutonium, Gross Alpha & Beta, Tritium, Isotopic Uranium, Strontium-90

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007



Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B107A/343195

**Sample Identification**

OS-10\_021814\_03 SUS  
OS-10\_021814\_03 DIS  
OS-10\_021814\_03 DISDUP  
OS-10\_021814\_03 DISMS  
OS-10\_021814\_03 DISMSD

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 900.0 for Gross Alpha & Beta

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## III. Continuing Calibration

Continuing calibration and background determination was performed at the required frequencies.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross Alpha Gross Beta	122 (80-120) 122 (80-120)	All samples in SDG 14B107A/343195	J (all detects) J (all detects)	P

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### VIII. Sample Result Verification

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B107A/343195	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples OS-10\_021814\_03 SUS and OS-10\_0218141\_01 SUS (from SDG 280-52250-1/14-02098-OR) and samples OS-10\_021814\_03 DIS and OS-10\_021814\_01 DIS (from SDG 280-52250-1/14-02098-OR) were identified as split samples. No gross alpha or beta was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Data Qualification Summary - SDG 14B107A/343195**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B107A/ 343195	OS-10_021814_03 SUS OS-10_021814_03 DIS	Gross Alpha Gross Beta	J (all detects) J (all detects)	P	Laboratory control samples (%R) (L)
14B107A/ 343195	OS-10_021814_03 SUS OS-10_021814_03 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG  
14B107A/343195**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG  
14B107A/343195**

No Sample Data Qualified in this SDG

gmy

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-18-14</u>
II.	Initial calibration	A <u>N</u>	
III.	Calibration verification	A <u>N</u>	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/MSD, DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	A <u>N</u>	
IX.	Overall assessment of data	A	split = 1 + OS-10_021814_01SUS } SD: 28-52250-1/ split = 2 + OS-10_021814_01DIS } 14-02098-OR
X.	Field duplicates	ND	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

water

1	OS-10_021814_03 SUS	11		21		31	
2	OS-10_021814_03 DIS	12		22		32	
3	OS-10_021814_03 DISDUP	13		23		33	
4	#2 MS	14		24		34	
5	#2 MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: "SUS" is particulate result  
"DIS" is dissolved result

Method: Radiochemistry (EPA Method 900.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?		✓		
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

LDC #: 31505B22  
SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer:                     

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field duplicates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	



LDC #: 31505B22

SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer: CL

METHOD: Radiochemistry (Method: 900.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Gross Alpha	100.4 (pCi/L)	82.3 (pCi/L)	122	122	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	Gross Beta	0.962u (pCi/L)	0.904u (pCi/L)	0	NA	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B107A/343195

**Sample Identification**

OS-10\_021814\_03  
OS-10\_021814\_03MS  
OS-10\_021814\_03DUP



## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 906.0 for Tritium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Although matrix spike (MS) sample was not required by the method, MS sample was reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B107A/343195	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples OS-10\_021814\_03 and OS-10\_021814\_01 (from SDG 280-52250-1/14-02098-OR) were identified as split samples. No tritium was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 14B107A/343195**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B107A/ 343195	OS-10_021814_03	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 14B107A/343195**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 14B107A/343195**

No Sample Data Qualified in this SDG

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-18-14</u>
II.	Initial calibration	A ✓	
III.	Calibration verification	A ✓	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	<u>MS, DUP</u>
VI.	Laboratory control samples	A	<u>LCS</u>
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	A ✓	
IX.	Overall assessment of data	A	<u>split =</u>
X.	Field duplicates	NO	<u>split = 1 + OS-10_021814_01 (506: 280-5725-1)</u>
XI.	Field blanks	N	<u>14-02099-OR</u>

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
water

1	OS-10_021814_03	11		21		31	
2	OS-10_021814_03MS	12		22		32	
3	OS-10_021814_03DUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	<u>PBW</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Radiochemistry (EPA Method 906.0)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.427$ .	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

LDC #: 31505B34  
SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer:                     

Validation Area	Yes	No	NA	Fihdings/Comments
IX: Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
X: Field duplicates				
Field duplicate pairs were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field duplicates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XI: Field blanks				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

LDC #: 31505B34  
 SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

METHOD: Radiochemistry (Method: 906.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	H-3	1698 (pCi/L)	1830 (pCi/L)	92.8	92.8	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	H-3	15.6 u (pCi/L)	105 u (pCi/L)	0	NA	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B107A/343195

**Sample Identification**

OS-10\_021814\_03 SUS  
OS-10\_021814\_03 DIS  
OS-10\_021814\_03 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B107A/343195	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples OS-10\_021814\_03 SUS and OS-10\_0218141\_01 SUS (from SDG 280-52250-1/14-02098-OR) and samples OS-10\_021814\_03 DIS and OS-10\_021814\_01 DIS (from SDG 280-52250-1/14-02098-OR) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 14B107A/343195**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B107A/ 343195	OS-10_021814_03 SUS OS-10_021814_03 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG  
14B107A/343195**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG  
14B107A/343195**

No Sample Data Qualified in this SDG

LDC #: 31505B35 **VALIDATION COMPLETENESS WORKSHEET**

Date: 3-20-14

SDG #: 14B107A/343195

Level ~~IV~~ **IV**

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc./GEL Laboratories LLC

gmh

Reviewer: MG  
2nd Reviewer: [Signature]

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-18-14
II.	Initial calibration	A✓	
III.	Calibration verification	A✓	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP (MS not req'd)
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	A✓	
IX.	Overall assessment of data	A	split = 1 + OS-10_021814_01SUS / SDG: 280-52250-1/
X.	Field duplicates	ND	split = 2 + OS-10_021814_01DIS / 14-02-098-OR
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
Water

1	OS-10_021814_03 SUS	11		21		31	
2	OS-10_021814_03 DIS	12		22		32	
3	OS-10_021814_03 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: "SUS" is particulate result  
 "DIS" is dissolved result

Method: Radiochemistry (EPA Method 901.1)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			



LDC #: 31505B35  
SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: CF

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.				
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 31505B35SDG #: —

## VALIDATION FINDINGS WORKSHEET

## Level IV Recalculation Worksheet

Page: 1 of 1Reviewer: MG2nd Reviewer: QMETHOD: Radiochemistry (Method: 901.1)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$\text{RPD} = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Am-241	38370 (pCi/L)	34500 (pCi/L)	111	111	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	Cs-137	0.243U (pCi/L)	0.642U (pCi/L)	0	NA	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B107A/343195

**Sample Identification**

OS-10\_021814\_03 SUS  
OS-10\_021814\_03 DIS  
OS-10\_021814\_03 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 and U-02-RC Modified for Isotopic Uranium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

Tracer recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B107A/343195	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

Samples OS-10\_021814\_03 SUS and OS-10\_0218141\_01 SUS (from SDG 280-52250-1/14-02098-OR) and samples OS-10\_021814\_03 DIS and OS-10\_021814\_01 DIS (from SDG 280-52250-1/14-02098-OR) were identified as split samples. No isotopic uranium was detected in any of the samples.

Isotope	Activity (pCi/g)		RPD (Limits)	Flag	A or P
	OS-10_021814_01 DIS	OS-10_021814_03 DIS			
Uranium-233/234	0.32	0.119U	47 ( $\leq 35$ )	NQ	-
Uranium-238	0.19	0.430U	77 ( $\leq 35$ )	NQ	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Data Qualification Summary - SDG 14B107A/343195**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B107A/ 343195	OS-10_021814_03 SUS OS-10_021814_03 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG  
14B107A/343195**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG  
14B107A/343195**

No Sample Data Qualified in this SDG



9M4 DOE EML HASL-300, U-02-RC Mod

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-18-14
II.	Initial calibration	A ✓	
III.	Calibration verification	A ✓	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP (MS not req'd.)
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	A	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	A ✓	
X.	Overall assessment of data	A	split = 1 + OS-10_021814_01 SUS / 506-280-52250-1/
XI.	Field duplicates	SW	split = 2 + OS-10_021814_01 DIS / 14-02098-OR
XII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet  
ND = No compounds detected  
R = Rinsate  
FB = Field blank  
D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
water

1	OS-10_021814_03 SUS	11		21		31	
2	OS-10_021814_03 DIS	12		22		32	
3	OS-10_021814_03 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: "SUS" is particulate result  
"DIS" is dissolved result

DOE EML HASL-300, U-02-RC Mod

Method: Radiochemistry (EPA Method )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD, or MS/DUP. Soil <u>Water</u> .		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?	✓			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

LDC #: 31505 B59  
 SDG #:           

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: Q

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.				
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC# 31505B59

**VALIDATION FINDINGS WORKSHEET**  
**Split Duplicates**

Page: 1 of 1  
Reviewer: OR  
2nd Reviewer: 9

Radiochemistry, Method See Cover

Isotope	Activity (pCi/g)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	OS-10_021814_01DIS	2		
Uranium-233/234	0.32	0.199U	47	NQ
Uranium-238	0.19	0.430U	77	NQ

NQ = no qualifier because one or both of the results are  $<5x$  RL

\\LDCFILESERVER\Validation\FIELD DUPLICATES\FD\_inorganic\31505B59Split.wpd

LDC #: 31505B59SDG #: -

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1Reviewer: MG2nd Reviewer: 9METHOD: Radiochemistry (Method: DOE EML HASL-300, U-02-RC Mod)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	U-238	61.5 (pCi/L)	54.1 (pCi/L)	114	114	Y
-	Matrix spike sample	-	-	-	-	-	-
3	Duplicate RPD	U-233/234	0.199u (pCi/L)	0.492u (pCi/L)	0	NA	Y
2	Chemical recovery	U-232	4.6551 (dpm)	4.8876 (dpm)	95.2	95.2	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./GEL Laboratories, LLC  
**Sample Delivery Group (SDG):** 14B107A/343195

**Sample Identification**

OS-10\_021814\_03 SUS  
OS-10\_021814\_03 DIS  
OS-10\_021814\_03 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 905.0 for Strontium-90

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## III. Continuing Calibration

Continuing calibration and background determination was performed at the required frequencies.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Strontium-90	124 (80-120)	All samples in SDG 14B107A/343195	J (all detects)	P

## VII. Carrier Recovery

Carrier recoveries (%R) were within QC limits.

### VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 14B107A/343195	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

Samples OS-10\_021814\_03 SUS and OS-10\_0218141\_01 SUS (from SDG 280-52250-1/14-02098-OR) and samples OS-10\_021814\_03 DIS and OS-10\_021814\_01 DIS (from SDG 280-52250-1/14-02098-OR) were identified as split samples. No strontium-90 was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 14B107A/343195**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
14B107A/ 343195	OS-10_021814_03 SUS OS-10_021814_03 DIS	Strontium-90	J (all detects)	P	Laboratory control samples (%R) (L)
14B107A/ 343195	OS-10_021814_03 SUS OS-10_021814_03 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG  
14B107A/343195**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 14B107A/343195**

No Sample Data Qualified in this SDG

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-18-14</u>
II.	Initial calibration	<u>Ax</u>	
III.	Calibration verification	<u>Ax</u>	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	<u>DUP (MS not req'd.)</u>
VI.	Laboratory control samples	<u>SW</u>	<u>LCS</u>
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	<u>Ax</u>	
X.	Overall assessment of data	A	<u>split = 1 + OS-10-021814-01 SUS</u> <sup>SUB</sup> <u>20-52250-1/</u>
XI.	Field duplicates	<u>ND</u>	<u>split = 2 + OS-10-021814-01 DIS / 14-02098-OR</u>
XII.	Field blanks	<u>N</u>	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
Water

1	OS-10_021814_03 SUS	11		21		31	
2	OS-10_021814_03 DIS	12		22		32	
3	OS-10_021814_03 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	<u>PBW</u>	30		40	

Notes: "SUS" is particulate result  
"DIS" is dissolved result

Method: Radiochemistry(EPA Method 905.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil <u>Water</u> .		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?		✓		
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?	✓			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31505861  
 SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: CF

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field duplicates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XI. Field blanks				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	




LDC #: 31505B61

SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer: 

METHOD: Radiochemistry (Method: 905.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

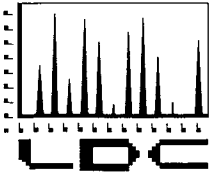
Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Sr-90	140.7 (pCi/L)	114 (pCi/L)	123	124	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	Sr-90	0.254 u (pCi/L)	0.289 u (pCi/L)	0	NA	Y
2	Chemical recovery	Sr	6.10 (mg)	8.20 (mg)	74.4	74.4	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.







## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

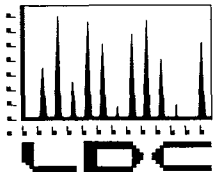
Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 19, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31505:

<u>SDG #</u>	<u>Fraction</u>
280-51989-1/14-02054 14B107A/343195	Gamma Spectroscopy, Isotopic Plutonium, Gross Alpha & Beta, Tritium, Isotopic Uranium, Strontium-90

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007



Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Services  
**Sample Delivery Group (SDG):** 280-51989-1/14-02054

**Sample Identification**

RD-27\_021014\_01 SUS  
RD-17\_021014\_01 SUS  
RD-27\_021014\_01 DIS  
RD-17\_021014\_01 DIS  
RD-27\_021014\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51989-1/14-02054	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-17\_021014\_01 SUS and RD-1\_021014\_03 SUS (from SDG 14B051/342836) and samples RD-17\_021014\_01 DIS and RD-1\_021014\_03 DIS (from SDG 14B051/342836) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-51989-1/14-02054**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51989-1/ 14-02054	RD-27_021014_01 SUS RD-17_021014_01 SUS RD-27_021014_01 DIS RD-17_021014_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-51989-1/14-02054**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-51989-1/14-02054**

No Sample Data Qualified in this SDG

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-10-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP (MS not req'd.)
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	{split=2 + RD-17-021014-03SUS }
X.	Field duplicates	ND	{split=4 + RD-17-021014-03DIS }
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank  
 SDG: 14B051/342836

Validated Samples:  
 all water

1	RD-27_021014_01 SUS	11		21		31	
2	RD-17_021014_01 SUS	12		22		32	
3	RD-27_021014_01 DIS	13		23		33	
4	RD-17_021014_01 DIS	14		24		34	
5	RD-27_021014_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: "SUS" is particulate result  
 "DIS" is dissolved result

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** March 24, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Plutonium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Services  
**Sample Delivery Group (SDG):** 280-51989-1/14-02054

### Sample Identification

RD-17\_021014\_01 SUS  
RD-17\_021014\_01 DIS  
RD-17\_021014\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Isotopic Plutonium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

Tracer recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51989-1/14-02054	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Plutonium - Data Qualification Summary - SDG 280-51989-1/14-02054**

<b>SDG</b>	<b>Sample</b>	<b>Isotope</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51989-1/ 14-02054	RD-17_021014_01 SUS RD-17_021014_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Plutonium - Laboratory Blank Data Qualification Summary - SDG 280-51989-1/14-02054**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Plutonium - Field Blank Data Qualification Summary - SDG 280-51989-1/14-02054**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Plutonium (DOE EML HASL-300)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-10-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP (MS not reg'd.)
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	
XII.	Tracer	A	

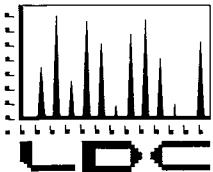
Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 Water

1	RD-17_021014_01 SUS	11		21		31	
2	RD-17_021014_01 DIS	12		22		32	
3	RD-17_021014_01 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: "SUS" is particulate result  
 "DIS" is dissolved result





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the final validation report for the fractions listed below. This SDG was received on March 20, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31513:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14B107	Volatiles, Wet Chemistry

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Hei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 18, 2014

**LDC Report Date:** March 26, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level IV & V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14B107

**Sample Identification**

OS-10\_021814\_03\*\*  
TB\_OS-10-021814A

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

Average relative response factors (RRF) for all compounds were within method and validation criteria.

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_OS-10-021814A was identified as a trip blank. No volatile contaminants were found.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
OS-10_021814_03**	Bromofluorobenzene Toluene-d8	124 (86-115) 119 (88-110)	All TCL compounds	J (all detects)	P
TB_OS-10-021814A	Bromofluorobenzene Toluene-d8	117 (86-115) 116 (88-110)	All TCL compounds	J (all detects)	P
MBLK1W	Bromofluorobenzene Toluene-d8	117 (86-115) 115 (88-110)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XII. Compound Quantitation**

All compound quantitations were within validation criteria for samples on which a Level IV review was performed.

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 14B107	All compounds reported below the RLs.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

Samples OS-10\_021814\_03\*\* and OS-10\_021814\_01 (from SDG 280-52249-1) were identified as split samples. No volatiles were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 14B107**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14B107	OS-10_021814_03** TB_OS-10-021814A	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
14B107	OS-10_021814_03** TB_OS-10-021814A	All compounds reported below the RLs.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 14B107**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 14B107**

No Sample Data Qualified in this SDG



LDC #: 31513A1a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/24/14

SDG #: 14B107

Level V/IV

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: JVB  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/18/14
II.	GC/MS Instrument performance check	NA	
III.	Initial calibration	NA	% RSD ≤ 30/15 %
IV.	Continuing calibration/ICV	NA	CV/ICV ≤ 20 %
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS 1B
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	NA	
XII.	Compound quantitation/RL/LOQ/LODs	NA	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	NA	
XV.	Overall assessment of data	A	
XVI.	Field duplicates / Split	ND	S = 1 + OS-10-021814-01 (280-52249-1)
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples: water

1	OS-10_021814_03 **	11	MBLKM	21		31	
2	TB_OS-10-021814A	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

(no r<sup>2</sup>)

**Method: Volatiles (EPA SW 846 Method 8260B)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?			/	
Did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?			/	
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $> 0.05$ ?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.			/	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			/	
Was a MS/MSD analyzed every 20 samples of each matrix?			/	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			/	
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.		/		
XVII. Field blanks				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		



**VALIDATION FINDINGS WORKSHEET**  
Initial Calibration Calculation Verification

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound

S= Standard deviation of the RRFs

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	10/21/13	Trichloroethene (IS1)	0.405	0.405	0.395	0.395	7.88	7.85
	TO01		Toluene (IS2)	1.735	1.735	1.700	1.700	7.59	7.59
			1,1,2,2-TCA (IS3)	0.746	0.746	0.743	0.743	14.17	14.16

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

Where:  
 $\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

Where:  
 ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound,

Cx = Concentration of compound,  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported % D	Recalculated %D
1	RBV265	2/19/2014	Trichloroethene (IS1)	0.395	0.395	0.395	0.0	0.0
			Toluene (IS2)	1.700	1.774	1.774	4.4	4.4
			1,1,2,2-TCA (IS3)	0.743	0.779	0.779	4.8	4.8

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4	10.0	8.08	80.8	80.8	0
Toluene-d8	1	11.9	119	119	1
Bromofluorobenzene	1	124	124	124	1

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 18, 2014

**LDC Report Date:** March 26, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14B107

**Sample Identification**

OS-10\_021814\_03

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were EPA Method 300.0 for Fluoride and EPA Method 314.0 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Continuing Calibration**

Continuing calibration frequency and analysis criteria were met.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VI. Duplicates**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 14B107	All analytes reported below the RL and above the MDL.	J (all detects)	A

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples OS-10\_021814\_03 and OS-10\_021814\_01 (from SDG 280-52249-1) were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	OS-10_021814_01	OS-10_021814_03			
Fluoride	0.50	0.556	11 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 14B107**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
14B107	OS-10_021814_03	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 14B107**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 14B107**

No Sample Data Qualified in this SDG

LDC #: 31513A6

# VALIDATION COMPLETENESS WORKSHEET

Date: 3-21-14

SDG #: 14B107

Level ~~V~~ IV

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

mg

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Fluoride (EPA Method 300.0), Perchlorate (EPA Method 314.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-18-14
II	Initial calibration	A ✓	
III.	Calibration verification	A ✓	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	client specified
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	A ✓	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	split = 1 + OS-10_021814_01 (SDG: 280-5224 9-1)
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
Water

1	OS-10_021814_03	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method *see cover*)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL (≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.			✓	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	



Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	OS-10_021814_01	1		
Fluoride	0.50	0.556	11	

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

METHOD: Inorganics, Method see cover

The correlation coefficient (r) for the calibration of F was recalculated. Calibration date: 1-28-14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$  Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte	Standard ID	Area Found (units)	Conc True (units)	Recalculated		Acceptable (Y/N)
					r or %R	Reported r or %R	
Initial calibration	F	Blank	1.187	0.05 (mg/L)	r = 0.999950	r = 0.999950	Y
		Standard 1	2.414	0.10 ( )			
		Standard 2	4.967	0.20 ( )			
		Standard 3	13.318	0.50 ( )			
		Standard 4	28.767	1.00 ( )			
		Standard 5	61.121	2.00 ( )			
		Standard 6	157.428	5.00 ( )			
Standard 7	311.445	10.00 ( ↓ )					
Calibration verification	C104	1437 IPCS	21.30 (μg/L)	25 (μg/L)	85.2	85.2	
Calibration verification	F	CCV189	2.074 (mg/L)	2.0 (mg/L)	103.7	103.7	
Calibration verification	-	-	-	-	-	-	-

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31513A6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: D

**METHOD:** Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$     Where,    Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$     Where,    S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated		Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD		
1610	Laboratory control sample	C104	23.60 (µg/L)	25 (µg/L)	94	94		Y
—	Matrix spike sample	—	(SSR-SR)	—	—	—	—	—
—	Duplicate sample	—	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

VALIDATION FINDINGS WORKSHEET  
Sample Calculation Verification

METHOD: Inorganics, Method see cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments?
- N N/A Are all detection limits below the CRQL?

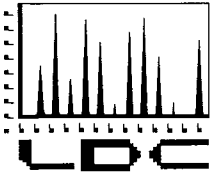
Compound (analyte) results for # 1, F reported with a positive detect were recalculated and verified using the following equation:

Concentration =  
 $x = my + b$   
where  $m = 0.0318966$   
 $b = 0.0411637$   
 $dil = 1x$

Recalculation:  
 $F = 0.0318966(16.135) + 0.0411637$   
 $= 0.5558 \text{ mg/L}$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	1	F	0.556	0.556	Y

Note: \_\_\_\_\_  
\_\_\_\_\_



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

March 27, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the final validation report for the fractions listed below. This SDG was received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project # 31543:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
14A094	Volatiles, 1,4-Dioxane

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** March 25, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A094

**Sample Identification**

RD-67\_012114\_03  
TB\_RD-67\_012114A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_RD-67\_012114A was identified as a trip blank. No volatile contaminants were found.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-67_012114_03	1,2-Dichloroethane-d4	74.1 (80-120)	All TCL compounds	J (all detects) UJ (all non-detects)	P
TB_RD-67_012114A	1,2-Dichloroethane-d4	79.1 (80-120)	All TCL compounds	J (all detects) UJ (all non-detects)	P
MBLK1W	1,2-Dichloroethane-d4	74.5 (80-120)	All TCL compounds	J (all detects) UJ (all non-detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Internal Standards**

Internal standards data were not reviewed for Level V.

### **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

### **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14A094	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

### **XIV. System Performance**

Raw data were not reviewed for this SDG.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-67\_012114\_03 and RD-67\_012114\_01 (from SDG 280-51368-1) were identified as split samples. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-67_012114_03	RD-67_012114_01			
Acetone	10U	6.5	42 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 14A094**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A094	RD-67_012114_03 TB_RD-67_012114A	All TCL compounds	J (all detects) UJ (all non-detects)	P	Surrogate spikes (%R) (S)
14A094	RD-67_012114_03 TB_RD-67_012114A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 14A094**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 14A094**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS/O
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	S = 1 + RD-6T-012114-01 (=80-51368-1)
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	RD-67_012114_03	N	11	ND	21	31
2	TB_RD-67_012114A	✓	12		22	32
3			13		23	33
4			14		24	34
5			15		25	35
6			16		26	36
7			17		27	37
8			18		28	38
9			19		29	39
10			20		30	40





**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Method: GCMS VOA (EPA SW 846 Method 8260B)

Analyte	Concentration (ug/L)		RPD (≤35%)
	RD-67_012114_03	RD-67_012114_01	
F	10U	6.5	42 (NR < 5x RL)

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** March 25, 2014

**Matrix:** Water

**Parameters:** 1,4-Dioxane

**Validation Level:** Level V

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A094

**Sample Identification**

RD-67\_012114\_03  
TB\_RD-67\_012114A

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B using Selected Ion Monitoring (SIM) for 1,4-Dioxane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,4-dioxane was found in the method blanks.

Sample TB\_RD-67\_012114A were identified as trip blanks. No 1,4-dioxane was found.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **IX. Regional Quality Assurance and Quality Control**

Not applicable.

## **X. Internal Standards**

Internal standards data were not reviewed for Level V.

## **XI. Target Compound Identifications**

Raw data were not reviewed for this SDG.

## **XII. Compound Quantitation**

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 14A094	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **XIII. Tentatively Identified Compounds (TICs)**

Raw data were not reviewed for this SDG.

## **XIV. System Performance**

Raw data were not reviewed for this SDG.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-67\_012114\_03 and RD-67\_012114\_01 (from SDG 280-51368-1) were identified as split samples. No 1,4-dioxane was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Data Qualification Summary - SDG 14A094**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14A094	RD-67_012114_03 TB_RD-67_012114A	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 14A094**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,4-Dioxane - Field Blank Data Qualification Summary - SDG 14A094**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8260B-SIM)

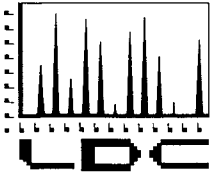
The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/21/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LC9/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	ND	SD = 1 + RD-67-012114-01(280-5)368-
XVII.	Field blanks	ND	TB = 2

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	RD-67_012114_03	IN	11	MBK1W	21	31
2	TB_RD-67_012114A	↓	12		22	32
3			13		23	33
4			14		24	34
5			15		25	35
6			16		26	36
7			17		27	37
8			18		28	38
9			19		29	39
10			20		30	40



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31547:

#### SDG #

280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

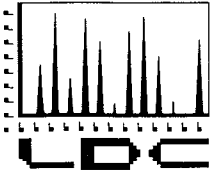
#### Fraction

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004





- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', with a long, sweeping flourish extending from the end of the name.

Pei Geng  
Project Manager/Senior Chemist



EDD Client Select IV LDC #31547 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	SDG#	DATE REC'D	(3) DATE DUE	Iodine -129 (902.0)		D.Iodine -129 (902.0)		Neptunium -236 (HASL)		Diss. Neptunium -236																													
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil																																							
D	280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02065-OR/ 14-02068-OR	03/25/14	04/01/14	-	-	-	-	2	0	2	0																												
E	280-52126-1/ 14-02066-OR/ 14-02067-OR/ 14-02069-OR	03/25/14	04/01/14	1	0	1	0	-	-	-	-																												
Total	T/PG			1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** March 27, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51856-1/14-02030-OR/14-02088-OR

### Sample Identification

OS-02\_020514\_01 SUS  
OS-03\_020514\_01 SUS  
OS-04\_020514\_01 SUS  
RD-59A\_020514\_01 SUS  
RD-59B\_020514\_01 SUS  
RD-59C\_020514\_01 SUS  
RD-60\_020514\_01 SUS  
OS-02\_020514\_01 DIS  
OS-03\_020514\_01 DIS  
OS-04\_020514\_01 DIS  
RD-59A\_020514\_01 DIS  
RD-59B\_020514\_01 DIS  
RD-59C\_020514\_01 DIS  
RD-60\_020514\_01 DIS  
RD-59C\_020514\_01 SUSMS  
RD-59C\_020514\_01 SUSMSD  
RD-59C\_020514\_01 SUSDUP  
RD-59C\_020514\_01 DIS MS  
RD-59C\_020514\_01 DIS MSD  
RD-59C\_020514\_01 DIS DUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 20 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross Alpha	78 (80-120)	OS-02_020514_01 DIS OS-03_020514_01 DIS OS-04_020514_01 DIS RD-59A_020514_01 DIS RD-59B_020514_01 DIS RD-59C_020514_01 DIS RD-60_020514_01 DIS	J (all detects) UJ (all non-detects)	P

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51856-1/ 14-02030-OR/14-02088-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 DIS OS-03_020514_01 DIS OS-04_020514_01 DIS RD-59A_020514_01 DIS RD-59B_020514_01 DIS RD-59C_020514_01 DIS RD-60_020514_01 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS OS-02_020514_01 DIS OS-03_020514_01 DIS OS-04_020514_01 DIS RD-59A_020514_01 DIS RD-59B_020514_01 DIS RD-59C_020514_01 DIS RD-60_020514_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG



**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/MSD, DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: all water

1	0	OS-2_020514_01 SUS	11	2	RD-59A_020514_01 DIS	21		31	
2	0	OS-3_020514_01 SUS	12	2	RD-59B_020514_01 DIS	22		32	
3	0	OS-4_020514_01 SUS	13	2	RD-59C_020514_01 DIS	23		33	
4	0	RD-59A_020514_01 SUS	14	2	RD-60_020514_01 DIS	24		34	
5	0	RD-59B_020514_01 SUS	15	1	RD-59C_020514_01 SUSMS	25		35	
6	0	RD-59C_020514_01 SUS	16	1	RD-59C_020514_01 SUSMSD	26		36	
7	0	RD-60_020514_01 SUS	17	1	RD-59C_020514_01 SUSDUP	27		37	
8	2	OS-2_020514_01 DIS	18	2	RD-59C_020514_01 DIS MS	28		38	
9	2	OS-3_020514_01 DIS	19	2	RD-59C_020514_01 DIS MSD	29		39	1 PBW
10	2	OS-4_020514_01 DIS	20	2	RD-59C_020514_01 DIS DUP	30		40	2 PBW

Notes: ID: OS-02  
 ↑

"SUS" is particulate  
 "DIS" is dissolved



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** March 27, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51856-1/14-02031-OR

### Sample Identification

OS-02\_020514\_01  
OS-03\_020514\_01  
OS-04\_020514\_01  
RD-59A\_020514\_01  
RD-59B\_020514\_01  
RD-59C\_020514\_01  
RD-60\_020514\_01  
OS-02\_020514\_01DUP  
RD-59C\_020514\_01MS  
RD-59C\_020514\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51856-1/14-02031-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-51856-1/14-02031-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51856-1/ 14-02031-OR	OS-02_020514_01 OS-03_020514_01 OS-04_020514_01 RD-59A_020514_01 RD-59B_020514_01 RD-59C_020514_01 RD-60_020514_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-51856-1/14-02031-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-51856-1/14-02031-OR**

No Sample Data Qualified in this SDG

LDC #: 31547A34

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-27-14

SDG #: 280-51856-1/14-02031-OR Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG  
2nd Reviewer: [Signature]

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/MSD, DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*all water*

1	OS-2_020514_01	11		21		31	
2	OS-3_020514_01	12		22		32	
3	OS-4_020514_01	13		23		33	
4	RD-59A_020514_01	14		24		34	
5	RD-59B_020514_01	15		25		35	
6	RD-59C_020514_01	16		26		36	
7	RD-60_020514_01	17		27		37	
8	OS-2_020514_01DUP	18		28		38	
9	#6 MS	19		29		39	
10	#6 MSD	20		30	PBW	40	

Notes: ID: OS-02





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51856-1/14-02030-OR/14-02088-OR

### Sample Identification

OS-02\_020514\_01 SUS  
OS-03\_020514\_01 SUS  
OS-04\_020514\_01 SUS  
RD-59A\_020514\_01 SUS  
RD-59B\_020514\_01 SUS  
RD-59C\_020514\_01 SUS  
RD-15\_020514\_01 SUS  
RD-60\_020514\_01 SUS  
OS-02\_020514\_01 DIS  
OS-03\_020514\_01 DIS  
OS-04\_020514\_01 DIS  
RD-59A\_020514\_01 DIS  
RD-59B\_020514\_01 DIS  
RD-59C\_020514\_01 DIS  
RD-15\_020514\_01 DIS  
RD-60\_020514\_01 DIS  
OS-02\_020514\_01 SUS DUP  
OS-02\_020514\_01 DIS DUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 18 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
OS-03_020514_01 DIS OS-02_020514_01 DIS DUP PBW1 PBW2	Europium-152	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A

Sample	Isotope	Finding	Flag	A or P
OS-04_020514_01 SUS RD-59C_020514_01 SUS PBW1	Europium-154	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
OS-03_020514_01 DIS OS-02_020514_01 DIS DUP PBW1 PBW2	Europium-152	Non-detect result is greater than the MDA.	R	A
OS-04_020514_01 SUS RD-59C_020514_01 SUS PBW1	Europium-154	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51856-1/14-02030-OR/ 14-02088-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-03_020514_01 DIS	Europium-152	R	A	Sample result verification (*VIII)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-04_020514_01 SUS RD-59C_020514_01 SUS	Europium-154	R	A	Sample result verification (*VIII)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-15_020514_01 SUS RD-60_020514_01 SUS OS-02_020514_01 DIS OS-03_020514_01 DIS OS-04_020514_01 DIS RD-59A_020514_01 DIS RD-59B_020514_01 DIS RD-59C_020514_01 DIS RD-15_020514_01 DIS RD-60_020514_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG

LDC #: 31547A35 **VALIDATION COMPLETENESS WORKSHEET**

Date: 3-27-14

SDG #: 280-51856-1/14-02030-OR/14-02088-OR Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-5-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	<u>9m/s</u> SW	
IX.	Overall assessment of data	ASW	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1 <sup>1</sup>	<sup>0</sup> OS-2 020514 01 SUS	11 <sup>2</sup>	<sup>0</sup> OS-4 020514 01 DIS	21		31	
2 <sup>1</sup>	<sup>0</sup> OS-3 020514 01 SUS	12 <sup>2</sup>	RD-59A 020514 01 DIS	22		32	
3 <sup>1</sup>	<sup>0</sup> OS-4 020514 01 SUS	13 <sup>2</sup>	RD-59B 020514 01 DIS	23		33	
4 <sup>1</sup>	RD-59A 020514 01 SUS	14 <sup>2</sup>	RD-59C 020514 01 DIS	24		34	
5 <sup>2</sup>	RD-59B 020514 01 SUS	15 <sup>2</sup>	RD-15 020514 01 DIS	25		35	
6 <sup>1</sup>	RD-59C 020514 01 SUS	16 <sup>2</sup>	RD-60 020514 01 DIS	26		36	
7 <sup>2</sup>	RD-15 020514 01 SUS	17 <sup>1</sup>	<sup>0</sup> OS-2 020514 01 SUS DUP	27		37	
8 <sup>1</sup>	RD-60 020514 01 SUS	18 <sup>2</sup>	<sup>0</sup> OS-2 020514 01 DIS DUP	28		38	
9 <sup>2</sup>	<sup>0</sup> OS-2 020514 01 DIS	19		29		39 <sup>1</sup>	PBW1
10 <sup>2</sup>	<sup>0</sup> OS-3 020514 01 DIS	20		30		40 <sup>2</sup>	PBW2

Notes: ID: OS-02  
 ↑

"SUS" is particulate  
 "DIS" is dissolved



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** March 29, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51856-1/14-02030-OR/14-02088-OR

### Sample Identification

OS-02\_020514\_01 SUS  
OS-03\_020514\_01 SUS  
OS-04\_020514\_01 SUS  
RD-59A\_020514\_01 SUS  
RD-59B\_020514\_01 SUS  
RD-59C\_020514\_01 SUS  
RD-60\_020514\_01 SUS  
OS-02\_020514\_01 DIS  
OS-03\_020514\_01 DIS  
OS-04\_020514\_01 DIS  
RD-59A\_020514\_01 DIS  
RD-59B\_020514\_01 DIS  
RD-59C\_020514\_01 DIS  
RD-60\_020514\_01 DIS  
RD-59C\_020514\_01 SUSMS  
RD-59C\_020514\_01 SUSMSD  
RD-59C\_020514\_01 SUSDUP  
RD-59C\_020514\_01 DIS MS  
RD-59C\_020514\_01 DIS MSD  
RD-59C\_020514\_01 DIS DUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 20 water samples listed on the cover sheet. The analyses were per EPA Method 908.0 for Isotopic Uranium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Isotope	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-59C_020514_01 SUSMS/MSD (OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS)	Uranium-238	-	-	27.81 (≤25)	J (all detects) UJ (all non-detects)	A

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
OS-02_020514_01 DIS	Uranium-232	115.03 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
OS-03_020514_01 DIS	Uranium-232	125.24 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
OS-04_020514_01 DIS	Uranium-232	134.80 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-59A_020514_01 DIS	Uranium-232	122.90 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-59B_020514_01 DIS	Uranium-232	121.45 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
PBW2	Uranium-232	119.53 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
OS-04_020514_01 SUS	Uranium-232	111.95 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-59A_020514_01 SUS	Uranium-232	119.17 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

## VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51856-1/14-02030-OR/ 14-02088-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS	Uranium-238	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (RPD) (E)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 DIS OS-03_020514_01 DIS OS-04_020514_01 DIS RD-59A_020514_01 DIS RD-59B_020514_01 DIS OS-04_020514_01 SUS RD-59A_020514_01 SUS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS OS-02_020514_01 DIS OS-03_020514_01 DIS OS-04_020514_01 DIS RD-59A_020514_01 DIS RD-59B_020514_01 DIS RD-59C_020514_01 DIS RD-60_020514_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG

LDC #: 31547A59 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-51856-1/14-02030-OR/14-02088-OR Level V

Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 3-27-14

Page: 1 of 1

Reviewer: MG  
2nd Reviewer: [Signature]

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	SW	MS/MSD, DUP (Dup: No Qual's)
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1 <sup>0</sup>	OS-2_020514_01 SUS	11 <sup>2</sup>	RD-59A_020514_01 DIS	21		31	
2 <sup>0</sup>	OS-3_020514_01 SUS	12 <sup>2</sup>	RD-59B_020514_01 DIS	22		32	
3 <sup>0</sup>	OS-4_020514_01 SUS	13 <sup>2</sup>	RD-59C_020514_01 DIS	23		33	
4 <sup>1</sup>	RD-59A_020514_01 SUS	14 <sup>2</sup>	RD-60_020514_01 DIS	24		34	
5 <sup>1</sup>	RD-59B_020514_01 SUS	15 <sup>1</sup>	RD-59C_020514_01 SUSMS	25		35	
6 <sup>1</sup>	RD-59C_020514_01 SUS	16 <sup>1</sup>	RD-59C_020514_01 SUSMSD	26		36	
7 <sup>1</sup>	RD-60_020514_01 SUS	17 <sup>1</sup>	RD-59C_020514_01 SUSDUP	27		37	
8 <sup>2</sup>	OS-2_020514_01 DIS	18 <sup>2</sup>	RD-59C_020514_01 DIS MS	28		38	
9 <sup>2</sup>	OS-3_020514_01 DIS	19 <sup>2</sup>	RD-59C_020514_01 DIS MSD	29		39 <sup>1</sup>	PBW1
10 <sup>2</sup>	OS-4_020514_01 DIS	20 <sup>2</sup>	RD-59C_020514_01 DIS DUP	30		40 <sup>2</sup>	PBW2

Notes: ID: OS-02  
↑

"SUS" is particulate

"DIS" is dissolved







## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 5, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51856-1/14-02030-OR/14-02088-OR

### Sample Identification

OS-02\_020514\_01 SUS  
OS-03\_020514\_01 SUS  
OS-04\_020514\_01 SUS  
RD-59A\_020514\_01 SUS  
RD-59B\_020514\_01 SUS  
RD-59C\_020514\_01 SUS  
RD-60\_020514\_01 SUS  
OS-02\_020514\_01 DIS  
OS-03\_020514\_01 DIS  
OS-04\_020514\_01 DIS  
RD-59A\_020514\_01 DIS  
RD-59B\_020514\_01 DIS  
RD-59C\_020514\_01 DIS  
RD-60\_020514\_01 DIS  
RD-59C\_020514\_01 SUSMS  
RD-59C\_020514\_01 SUSMSD  
RD-59C\_020514\_01 SUSDUP  
RD-59C\_020514\_01 DIS MS  
RD-59C\_020514\_01 DIS MSD  
RD-59C\_020514\_01 DIS DUP

Samples ending in "SUS" were reported for particulate only  
Samples ending in "DIS" were reported for dissolved only

## Introduction

This data review covers 20 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Isotope	RPD (Limits)	Normalized Difference (Limits)	Flag	A or P
RD-59C_020514_01 SUS DUP (OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS)	Strontium-90	-	4.18 ( $\leq 3$ )	J (all detects) UJ (all non-detects)	A

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Strontium-90	130 (80-120)	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS	J (all detects)	P

## VII. Carrier Recovery

All carrier recoveries were within validation criteria.

## VIII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-59C_020514_01 SUSDUP	Strontium-90	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG280-51856-1/14-02030-OR/ 14-02088-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS	Strontium-90	J (all detects) JJ (all non-detects)	P	Duplicate sample analysis (difference) (E)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS	Strontium-90	J (all detects)	P	Laboratory control samples (%R) (L)
280-51856-1/ 14-02030-OR/ 14-02088-OR	OS-02_020514_01 SUS OS-03_020514_01 SUS OS-04_020514_01 SUS RD-59A_020514_01 SUS RD-59B_020514_01 SUS RD-59C_020514_01 SUS RD-60_020514_01 SUS OS-02_020514_01 DIS OS-03_020514_01 DIS OS-04_020514_01 DIS RD-59A_020514_01 DIS RD-59B_020514_01 DIS RD-59C_020514_01 DIS RD-60_020514_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 280-51856-1/14-02030-OR/14-02088-OR**

No Sample Data Qualified in this SDG

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	SW	MS/MSD, DUP (MS/MSD: No Quals)
VI.	Laboratory control samples	MM ASW	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	MM SW N	
X.	Overall assessment of data	↓ SW A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: all water

1	0	OS-2_020514_01 SUS	11	2	RD-59A_020514_01 DIS	21		31	
2	0	OS-3_020514_01 SUS	12	2	RD-59B_020514_01 DIS	22		32	
3	0	OS-4_020514_01 SUS	13	2	RD-59C_020514_01 DIS	23		33	
4	0	RD-59A_020514_01 SUS	14	2	RD-60_020514_01 DIS	24		34	
5	0	RD-59B_020514_01 SUS	15	1	RD-59C_020514_01 SUSMS	25		35	
6	0	RD-59C_020514_01 SUS	16	1	RD-59C_020514_01 SUSMSD	26		36	
7	0	RD-60_020514_01 SUS	17	1	RD-59C_020514_01 SUSDUP	27		37	
8	2	OS-2_020514_01 DIS	18	2	RD-59C_020514_01 DIS MS	28		38	
9	2	OS-3_020514_01 DIS	19	2	RD-59C_020514_01 DIS MSD	29		39	PBW1
10	2	OS-4_020514_01 DIS	20	2	RD-59C_020514_01 DIS DUP	30		40	PBW2

Notes: ID: OS-02  
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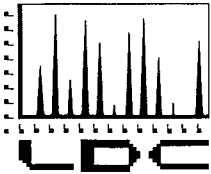
"SUS" is particulate  
 "DIS" is dissolved











## LABORATORY DATA CONSULTANTS, INC.

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MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31547:

#### SDG #

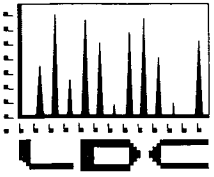
280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

#### Fraction

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV		LDC #31547 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																							
LDC	SDG#	DATE REC'D	(3) DATE DUE	Gamma Spec. (901.1)		D.Gamma Spec. (901.1)		Am& Cm. (AM-01)		Am& Cm. (AM-01)		Gross α&β (900.0)		D.Gross α&β (900.0)		Iso. Pu (HASL)		D.Iso. Pu (HASL)		Iso. U (HASL)		D. Iso. U (HASL)		Sr-90 (905.0)		Diss. Sr-90 (905.0)		Tritium (906.0)		Ra-228 (904.0)		Diss. Ra-228 (904.0)		Carbon -14 (AP-026)		Diss. Carbon -14					
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
A	280-51856-1/ 14-02030-OR/ 14-02088-OR/ 14-02031-OR	03/25/14	04/01/14	8	0	8	0	-	-	-	-	7	0	7	0	-	-	-	-	7	0	7	0	7	0	7	0	7	0	-	-	-	-	-	-	-	-	-	-	-	-
B	280-51906-1/ 14-02034-OR/ 14-02035-OR/ 14-02089-OR	03/25/14	04/01/14	5	0	5	0	1	0	1	0	3	0	3	0	1	0	1	0	3	0	3	0	3	0	3	0	3	0	-	-	-	-	-	-	-	-	-	-	-	
C	280-51959-1/ 14-02037-OR/ 14-02038-OR/ 14-02112-OR/ 14-02118-OR	03/25/14	04/01/14	7	0	7	0	2	0	2	0	6	0	6	0	2	0	2	0	6	0	6	0	6	0	7	0	5	0	2	0	2	0	-	-	-	-	-	-	-	
D	280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02065-OR/ 14-02068-OR	03/25/14	04/01/14	6	0	6	0	2	0	2	0	5	0	5	0	4	0	4	0	5	0	5	0	7	0	7	0	7	0	-	-	-	-	-	-	-	-	-	-	-	
E	280-52126-1/ 14-02066-OR/ 14-02067-OR/ 14-02069-OR	03/25/14	04/01/14	11	0	11	0	2	0	2	0	5	0	5	0	3	0	3	0	5	0	5	0	8	0	8	0	10	0	-	-	-	-	-	-	1	0	1	0		
F	280-52128-1/ 14-02062-OR/ 14-02063-OR/ 14-02064-OR/ 14-02117-OR	03/25/14	04/01/14	9	0	9	0	1	0	1	0	4	0	4	0	-	-	-	-	4	0	4	0	7	0	7	0	5	0	-	-	-	-	-	-	1	0	1	0		
G	280-52250-1/ 14-02098-OR/ 14-02099-OR	03/25/14	04/01/14	2	0	2	0	-	-	-	-	2	0	2	0	-	-	-	-	2	0	2	0	2	0	2	0	2	0	-	-	-	-	-	-	-	-	-	-	-	
H	280-52354-1/ 14-02126-OR	03/25/14	04/01/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	0	-	-	-	-	-	-	-	-	-	-		
Total				48	0	48	0	8	0	8	0	32	0	32	0	10	0	10	0	32	0	32	0	40	0	41	0	43	0	2	0	2	0	2	0	2	0	2	0	392	

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** March 27, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51906-1/14-02034-OR/14-02089-OR

**Sample Identification**

RD-14\_020614\_01 SUS  
RD-33B\_020614\_01 SUS  
RD-33C\_020614\_01 SUS  
RD-14\_020614\_01 DIS  
RD-33B\_020614\_01 DIS  
RD-33C\_020614\_01 DIS  
RD-33B\_020614\_01 SUS DUP  
RD-33B\_020614\_01 DIS DUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 8 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Isotope	Normalized Difference (Limits)	Flag	A or P
RD-33B_020614_01 DIS DUP (RD-14_020614_01 DIS RD-33B_020614_01 DIS RD-33C_020614_01 DIS)	Gross Alpha	3.56 ( $\leq 3$ )	J (all detects) UJ (all non-detects)	A
RD-33B_020614_01 SUS DUP (RD-14_020614_01 SUS RD-33B_020614_01 SUS RD-33C_020614_01 SUS)	Gross Alpha	3.04 ( $\leq 3$ )	J (all detects) UJ (all non-detects)	A

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.



## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51906-1/14-02034-OR/ 14-02089-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51906-1/ 14-02034-OR/ 14-02089-OR	RD-14_020614_01 DIS RD-33B_020614_01 DIS RD-33C_020614_01 DIS RD-14_020614_01 SUS RD-33B_020614_01 SUS RD-33C_020614_01 SUS	Gross Alpha	J (all detects) UJ (all non-detects)	P	Duplicate sample analysis (difference) (E)
280-51906-1/ 14-02034-OR/ 14-02089-OR	RD-14_020614_01 SUS RD-33B_020614_01 SUS RD-33C_020614_01 SUS RD-14_020614_01 DIS RD-33B_020614_01 DIS RD-33C_020614_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-6-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	SW	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

all water

1 <sup>1</sup>	RD-14_020614_01 SUS	11		21		31	
2 <sup>1</sup>	RD-33B_020614_01 SUS	12		22		32	
3 <sup>1</sup>	RD-33C_020614_01 SUS	13		23		33	
4 <sup>2</sup>	RD-14_020614_01 DIS	14		24		34	
5 <sup>2</sup>	RD-33B_020614_01 DIS	15		25		35	
6 <sup>2</sup>	RD-33C_020614_01 DIS	16		26		36	
7 <sup>1</sup>	RD-33B_020614_01 SUS DUP	17		27		37	
8 <sup>2</sup>	RD-33B_020614_01 DIS DUP	18		28		38	
9		19		29		39 <sup>1</sup>	PBW1
10		20		30		40 <sup>2</sup>	PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved

LDC #: 31547B22

SDG #: -

VALIDATION FINDINGS WORKSHEET

Duplicate Analysis

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

METHOD: Radiochemistry (Method: 900.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a duplicate sample analyzed the required frequency of 5% in this SDG?
Y N N/A Were all duplicate sample duplicate error ratio (DER) <= 1.42? DER = (|Act1 - Act2|) / (2 \* sqrt(delta1^2 + delta2^2))^1/2 Act = sample activity delta = 1 sigma error

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

Table with 7 columns: #, Duplicate ID, Matrix, Isotope, Normalized Difference DER (Limits), Associated Samples, Qualifications. Row 1: 1, 8, water, Gross Alpha, 3.56 (<= 3), 4 -> 6, J/UJ/A (E). Row 2: 2, 7, down arrow, Gross Alpha, 3.04 (down arrow), 1 -> 3, down arrow (down arrow).

Comments:

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51906-1/14-02035-OR

**Sample Identification**

RD-14\_020614\_01  
RD-33B\_020614\_01  
RD-33C\_020614\_01  
RD-33B\_020614\_01DUP

## Introduction

This data review covers 4 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG280-51906-1/14-02035-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-51906-1/14-02035-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51906-1/ 14-02035-OR	RD-14_020614_01 RD-33B_020614_01 RD-33C_020614_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-51906-1/14-02035-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-51906-1/14-02035-OR**

No Sample Data Qualified in this SDG

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-6-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples:  
all water

1	RD-14_020614_01	11		21		31	
2	RD-33B_020614_01	12		22		32	
3	RD-33C_020614_01	13		23		33	
4	RD-33B_020614_01DUP	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51906-1/14-02034-OR/14-02089-OR

### Sample Identification

RD-92\_020614\_01 SUS  
RD-14\_020614\_01 SUS  
WS-07\_020614\_01 SUS  
RD-33B\_020614\_01 SUS  
RD-33C\_020614\_01 SUS  
RD-92\_020614\_01 DIS  
RD-14\_020614\_01 DIS  
WS-07\_020614\_01 DIS  
RD-33B\_020614\_01 DIS  
RD-33C\_020614\_01 DIS  
RD-33C\_020614\_01 SUSDUP  
RD-33B\_020614\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 12 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS (both from SDG 280-51959/14-02037-OR) were identified as equipment blanks. No gamma emitting radionuclides were found.

Samples FB\_021214)19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gamma emitting radionuclides were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-33C_020614_01 SUS	Europium-154	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-33C_020614_01 SUS	Europium-154	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51906-1/14-02034-OR/ 14-02089-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51906-1/ 14-02034-OR/ 14-02089-OR	RD-33C_020614_01 SUS	Europium-154	R	A	Sample result verification (*VIII)
280-51906-1/ 14-02034-OR/ 14-02089-OR	RD-92_020614_01 SUS RD-14_020614_01 SUS WS-07_020614_01 SUS RD-33B_020614_01 SUS RD-33C_020614_01 SUS RD-92_020614_01 DIS RD-14_020614_01 DIS WS-07_020614_01 DIS RD-33B_020614_01 DIS RD-33C_020614_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

No Sample Data Qualified in this SDG

LDC #: 31547B35 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-51906-1/14-02034-OR/14-02089-OR Level V

Laboratory : Test America, Inc./Eberline Analytical Corporation

Date: 3-27-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-6-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	SW N	
IX.	Overall assessment of data	gmk SWA	
X.	Field duplicates	N	
XI.	Field blanks	ND	EB = EB_RD-07_020714 SUS } EB = EB_RD-07_020714 DIS } SDG: 280-51959/ 14-02037-OR/ 14-02118-OR

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

FB = FB-021214-19 SUS }  
FB = FB-021214-19 DIS } SDG: 280-52126-1/  
14-02067-OR

Validated Samples:  
all water

1 <sup>2</sup>	RD-92_020614_01 SUS	11 <sup>1</sup>	RD-33C_020614_01 SUSDUP	21		31	
2 <sup>1</sup>	RD-14_020614_01 SUS	12 <sup>2</sup>	RD-33B_020614_01 DISDUP	22		32	
3 <sup>2</sup>	WS-07_020614_01 SUS	13		23		33	
4 <sup>3</sup>	RD-33B_020614_01 SUS	14		24		34	
5 <sup>1</sup>	RD-33C_020614_01 SUS	15		25		35	
6 <sup>2</sup>	RD-92_020614_01 DIS	16		26		36	
7 <sup>2</sup>	RD-14_020614_01 DIS	17		27		37	
8 <sup>2</sup>	WS-07_020614_01 DIS	18		28		38	
9 <sup>2</sup>	RD-33B_020614_01 DIS	19		29		39	1 PBW1
10 <sup>2</sup>	RD-33C_020614_01 DIS	20		30		40	2 PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Americium & Curium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51906-1/14-02034-OR

**Sample Identification**

RD-33B\_020614\_01 SUS  
RD-33B\_020614\_01 DIS  
RD-33B\_020614\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per Method EiChrom AM-01 for Americium and Curium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Chemical Recovery**

Chemical recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-33B_020614_01 SUS PBW	Curium -245/246	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51906-1/14-02034-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Data Qualification Summary - SDG 280-51906-1/14-02034-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51906-1/ 14-02034-OR	RD-33B_020614_01 SUS	Curium -245/246	R	A	Sample result verification (*IX)
280-51906-1/ 14-02034-OR	RD-33B_020614_01 SUS RD-33B_020614_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Laboratory Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Field Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR**

No Sample Data Qualified in this SDG

gms

*Americium and Curium*

**METHOD:** Alpha Spectroscopy (Method EiChrom Am-01)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-6-14
IIa.	Initial calibration	N	
IIb.	Calibration verification	N	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
IVa.	Laboratory control samples	A	LCS
V.	Sample specific chemical recovery	A	
VI.	<del>Radionuclide Quantitation &amp; Implied Detection Limits</del> MDA	A	
VII.	Sample result verification	SWA	
VIII.	Overall assessment of data	gms SWA	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
water

1	RD-33B_020614_01 SUS	11		21		31	
2	RD-33B_020614_01 DIS	12		22		32	
3	RD-33B_020614_01 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** March 29, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51906-1/14-02034-OR/14-02089-OR

**Sample Identification**

RD-14\_020614\_01 SUS  
RD-33B\_020614\_01 SUS  
RD-33C\_020614\_01 SUS  
RD-14\_020614\_01 DIS  
RD-33B\_020614\_01 DIS  
RD-33C\_020614\_01 DIS  
RD-33B\_020614\_01 SUSDUP  
RD-33C\_020614\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 8 water samples listed on the cover sheet. The analyses were per EPA Method 908.0 for Isotopic Uranium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Uranium-238	0.077 pCi/L	RD-14_020614_01 DIS RD-33B_020614_01 DIS RD-33C_020614_01 DIS

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks with the following exceptions:

Sample	Isotope	Reported Activity	Modified Final Activity
RD-33B_020614_01 DIS	Uranium-238	0.14 pCi/L	0.14U pCi/L

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW2	Uranium-232	117.93 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-33C_020614_01 DISDUP	Uranium-232	122.36 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-33B_020614_01 DIS	Uranium-232	129.41 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-33C_020614_01 DIS	Uranium-232	116.66 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
PBW1	Uranium-232	119.14 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-33B_020614_01 SUS	Uranium-232	119.40 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-33C_020614_01 SUS	Uranium-232	125.14 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-14_020614_01 SUS	Uranium-232	111.32 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

## VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51906-1/14-02034-OR/ 14-02089-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51906-1/ 14-02034-OR/ 14-02089-OR	RD-33B_020614_01 DIS RD-33C_020614_01 DIS RD-33C_020614_01 SUS RD-14_020614_01 SUS RD-33B_020614_01 SUS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-51906-1/ 14-02034-OR/ 14-02089-OR	RD-14_020614_01 SUS RD-33B_020614_01 SUS RD-33C_020614_01 SUS RD-14_020614_01 DIS RD-33B_020614_01 DIS RD-33C_020614_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

SDG	Sample	Isotope	Modified Final Concentration	A or P	Code
280-51906-1/ 14-02034-OR/ 14-02089-OR	RD-33B_020614_01 DIS	Uranium-238	0.14U pCi/L	A	B

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-6-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples:  
 all water

1	RD-14_020614_01 SUS	11		21		31	
2	RD-33B_020614_01 SUS	12		22		32	
3	RD-33C_020614_01 SUS	13		23		33	
4	RD-14_020614_01 DIS	14		24		34	
5	RD-33B_020614_01 DIS	15		25		35	
6	RD-33C_020614_01 DIS	16		26		36	
7	RD-33B_020614_01 SUSDUP	17		27		37	
8	RD-33C_020614_01 DISDUP	18		28		38	
9		19		29		39	PBW1
10		20		30		40	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** Radiochemistry, Method 908.0

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** PCi/L

**Associated Samples:** 4-6 **Qual:** U (B) **raise MDA to the "U" sample value**

Isotope	Blank ID	Blank Action Limit	Sample Identification														
	PB		5														
U-238	0.077	0.385	0.14														

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51906-1/14-02034-OR/14-02089-OR

**Sample Identification**

RD-14\_020614\_01 SUS  
RD-33B\_020614\_01 SUS  
RD-33C\_020614\_01 SUS  
RD-14\_020614\_01 DIS  
RD-33B\_020614\_01 DIS  
RD-33C\_020614\_01 DIS  
RD-33B\_020614\_01 SUSDUP  
RD-33B\_020614\_01 DISDUP

Samples ending in "SUS" were reported for particulate only  
Samples ending in "DIS" were reported for dissolved only

## Introduction

This data review covers 8 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51906-1/14-02034-OR/ 14-02089-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Strontium-90 - Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51856-1/ 14-02030-OR/ 14-02088-OR	RD-14_020614_01 SUS RD-33B_020614_01 SUS RD-33C_020614_01 SUS RD-14_020614_01 DIS RD-33B_020614_01 DIS RD-33C_020614_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Strontium-90 - Field Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR/14-02089-OR**

No Sample Data Qualified in this SDG

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-6-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
*all water*

1	RD-14_020614_01 SUS	11		21		31	
2	RD-33B_020614_01 SUS	12		22		32	
3	RD-33C_020614_01 SUS	13		23		33	
4	RD-14_020614_01 DIS	14		24		34	
5	RD-33B_020614_01 DIS	15		25		35	
6	RD-33C_020614_01 DIS	16		26		36	
7	RD-33B_020614_01 SUSDUP	17		27		37	
8	<del>RD-33C_020614_01 DISDUP</del>	18		28		38	
9	# 5 DUP	19		29		39	PBW1
10		20		30		40	PBW2

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

"SUS" is particulate  
 "DIS" is dissolved

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 6, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Plutonium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51906-1/14-02034-OR

**Sample Identification**

RD-33B\_020614\_01 SUS  
RD-33B\_020614\_01 DIS  
RD-33B\_020614\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Isotopic Plutonium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

Tracer recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51906-1/14-02034-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Data Qualification Summary - SDG 280-51906-1/14-02034-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51906-1/ 14-02034-OR	RD-33B_020614_01 SUS RD-33B_020614_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Laboratory Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Field Blank Data Qualification Summary - SDG 280-51906-1/14-02034-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Plutonium (DOE EML HASL-300)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

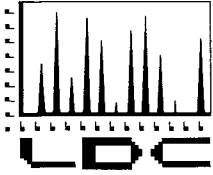
	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-6-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	
XII.	Tracer	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:  
 Water

1	RD-33B_020614_01 SUS	11		21		31	
2	RD-33B_020614_01 DIS	12		22		32	
3	RD-33B_020614_01 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31547:

#### SDG #

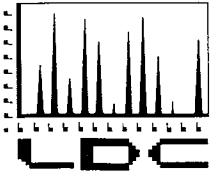
280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

#### Fraction

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist







## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR

### Sample Identification

EB\_RD-07\_020714 SUS  
RD-07\_020714\_01A SUS  
RD-20\_020714\_01 SUS  
RD-18\_020714\_01 SUS  
RD-18\_020714\_36 SUS  
RD-86\_020714\_01 SUS  
EB\_RD-07\_020714 DIS  
RD-07\_020714\_01A DIS  
RD-20\_020714\_01 DIS  
RD-18\_020714\_01 DIS  
RD-18\_020714\_36 DIS  
RD-86\_020714\_01 DIS  
RD-07\_020714\_01A SUSDUP  
EB\_RD-07\_020714 DISDUP  
RD-07\_020714\_01A DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS were identified as equipment blanks. No gross alpha or beta contaminants were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gross alpha or beta contaminants were found.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross Alpha	76 (80-120)	RD-07_020714_01A DIS RD-20_020714_01 DIS RD-18_020714_01 DIS RD-18_020714_36 DIS RD-86_020714_01 DIS	J (all detects) UJ (all non-detects)	P

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross Alpha	78 (80-120)	RD-07_020714_01A SUS RD-20_020714_01 SUS RD-18_020714_01 SUS RD-18_020714_36 SUS RD-86_020714_01 SUS	J (all detects) UJ (all non-detects)	P

### VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02037-OR/ 14-02112-OR/14-02118-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples RD-18\_020714\_01 SUS and RD-18\_020714\_36 SUS and samples RD-18\_020714\_01 DIS and RD-18\_020714\_36 DIS were identified as field duplicates. No gross alpha or beta was detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01 DIS	RD-18_020714_36 DIS			
Gross Alpha	8.6	6.1	34 (≤35)	-	-
Gross Beta	4.5	4.6	2 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02037-OR/ 14-02112-OR/ 14-02118-OR	RD-07_020714_01A DIS RD-20_020714_01 DIS RD-18_020714_01 DIS RD-18_020714_36 DIS RD-86_020714_01 DIS RD-07_020714_01A SUS RD-20_020714_01 SUS RD-18_020714_01 SUS RD-18_020714_36 SUS RD-86_020714_01 SUS	Gross Alpha	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-51959-1/ 14-02037-OR/ 14-02112-OR/ 14-02118-OR	EB_RD-07_020714 SUS RD-07_020714_01A SUS RD-20_020714_01 SUS RD-18_020714_01 SUS RD-18_020714_36 SUS RD-86_020714_01 SUS EB_RD-07_020714 DIS RD-07_020714_01A DIS RD-20_020714_01 DIS RD-18_020714_01 DIS RD-18_020714_36 DIS RD-86_020714_01 DIS RD-07_020714_01A SUSDUP EB_RD-07_020714 DISDUP RD-07_020714_01A DISDUP	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-7-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 4* + 5* D = 10 + 11
XI.	Field blanks	ND	EB = 1, 7

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

FB = FB-021214-19 SUS  
 FB = FB-021214-19 DIS

SDG: 280-52126-1/  
14-02067-OR

Validated Samples:  
all water

1 <sup>3</sup>	EB_RD-07_020714 SUS	11 <sup>1</sup>	RD-18_020714_36 DIS	21		31	
2 <sup>2</sup>	RD-07_020714_01A SUS	12 <sup>1</sup>	RD-86_020714_01 DIS	22		32	
3 <sup>2</sup>	RD-20_020714_01 SUS	13 <sup>2</sup>	RD-07_020714_01A SUSDUP	23		33	
4 <sup>2</sup>	RD-18_020714_01 SUS	14 <sup>3</sup>	EB_RD-07_020714 DISDUP	24		34	
5 <sup>2</sup>	RD-18_020714_36 SUS	15 <sup>1</sup>	RD-07_020714_01A DISDUP	25		35	
6 <sup>2</sup>	RD-86_020714_01 SUS	16		26		36	
7 <sup>3</sup>	EB_RD-07_020714 DIS	17		27		37	
8 <sup>1</sup>	RD-07_020714_01A DIS	18		28		38 <sup>1</sup>	PBW1
9 <sup>1</sup>	RD-20_020714_01 DIS	19		29		39 <sup>2</sup>	PBW2
10 <sup>1</sup>	RD-18_020714_01 DIS	20		30		40 <sup>3</sup>	PBW3

Notes: "SUS" is particulate  
"DIS" is dissolved





Method: Radiochemistry (900.0)

Analyte	Activity (pCi/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	10	11		
Gross Alpha	8.6	6.1	34	
Gross Beta	4.5	4.6	2	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Radium-228  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical

**Sample Delivery Group (SDG):** 280-51959-1/14-02037-OR

**Sample Identification**

RD-18\_020714\_01 SUS  
RD-18\_020714\_36 SUS  
RD-18\_020714\_01 DIS  
RD-18\_020714\_36 DIS  
RD-18\_020714\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 904.0 for Radium-228.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Radium-228	130 (80-120)	All samples in SDG 280-51959-1/14-02037-OR	J (all detects)	P

## VII. Carrier Recovery

All carrier recoveries were within validation criteria.

## VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02037-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

Samples RD-18\_020714\_01 SUS and RD-18\_020714\_36 SUS and samples RD-18\_020714\_01 DIS and RD-18\_020714\_36 DIS were identified as field duplicates. No radium-228 was detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01 DIS	RD-18_020714_36 DIS			
Radium-228	1.4	1.8	25 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Radium-226 - Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02037-OR	RD-18_020714_01 SUS RD-18_020714_36 SUS RD-18_020714_01 DIS RD-18_020714_36 DIS	Radium-228	J (all detects)	P	Laboratory control samples (%R) (L)
280-51959-1/ 14-02037-OR	RD-18_020714_01 SUS RD-18_020714_36 SUS RD-18_020714_01 DIS RD-18_020714_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Radium-226 - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Radium-226 - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG

LDC #: 31547C29b **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-51959-1/14-02037-OR

Level ~~IV~~ <sup>V</sup> *am*

Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 3-27-14

Page: 1 of 1

Reviewer: MG  
2nd Reviewer: Q

**METHOD:** Radium 228 (EPA Method 904.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-7-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	SW	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	SW	D = 1+2* D = 3+4
XII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

\* = ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

*all water*

1	RD-18_020714_01 SUS	11		21		31	
2	RD-18_020714_36 SUS	12		22		32	
3	RD-18_020714_01 DIS	13		23		33	
4	RD-18_020714_36 DIS	14		24		34	
5	RD-18_020714_01DIS DUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved





Method: Radiochemistry (904.0)

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	3	4		
Ra-228	1.4	1.8	25	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-1/14-02038-OR

**Sample Identification**

RD-07\_020714\_01A  
RD-20\_020714\_01  
RD-18\_020714\_01  
RD-18\_020714\_36  
RD-86\_020714\_01  
RD-07\_020714\_01ADUP

## Introduction

This data review covers 6 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Sample FB\_021214\_19 (from SDG 280-52126-1/14-02069-OR) was identified as a field blank. No tritium was found with the following exceptions:

Blank ID	Sampling Date	Isotope	Activity	Associated Samples
FB_021214_19	2/12/14	Tritium	540 pCi/L	RD-07_020714_01A

Sample activities were compared to activities detected in the field blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02038-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

Samples RD-18\_020714\_01 and RD-18\_020714\_36 were identified as field duplicates. No tritium was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Data Qualification Summary - SDG 280-51959-1/14-02038-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02038-OR	RD-07_020714_01A RD-20_020714_01 RD-18_020714_01 RD-18_020714_36 RD-86_020714_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02038-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02038-OR**

No Sample Data Qualified in this SDG

gmH

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-7-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	ND	D = 3+4
XI.	Field blanks	SW	<del>EB-EB-RD-07-020714</del> gmH

FB = FB\_021214\_19 (SDG: 280-52126-1 / 14-02069-OR)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

~~EB-EB-PZ-109~~ gmH

Validated Samples:  
 all water

1	RD-07_020714_01A	11		21		31	
2	RD-20_020714_01	12		22		32	
3	RD-18_020714_01	13		23		33	
4	RD-18_020714_36	14		24		34	
5	RD-86_020714_01	15		25		35	
6	RD-07_020714_01ADUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-1/14-02037-OR

### Sample Identification

EB\_RD-07\_020714 SUS  
RD-07\_020714\_01A SUS  
RD-21\_020714\_01 SUS  
RD-20\_020714\_01 SUS  
RD-18\_020714\_01 SUS  
RD-18\_020714\_36 SUS  
RD-86\_020714\_01 SUS  
EB\_RD-07\_020714 DIS  
RD-07\_020714\_01A DIS  
RD-21\_020714\_01 DIS  
RD-20\_020714\_01 DIS  
RD-18\_020714\_01 DIS  
RD-18\_020714\_36 DIS  
RD-86\_020714\_01 DIS  
RD-07\_020714\_01A DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-90\_021214 SUS and EB\_RD-90\_021214 DIS (from SDG 280-52126-1/14-02066-OR), EB\_PZ-109\_021314 SUS, EB\_PZ-109\_021314 DIS (from SDG 280-52128-1/14-02062-OR) and EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS were identified as equipment blanks. No gamma emitting radionuclides were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gamma emitting radionuclides were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-20_020714_01 SUS RD-20_020714_01 DIS	Europium-152	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-20_020714_01 SUS RD-20_020714_01 DIS	Europium-152	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02037-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02037-OR	RD-20_020714_01 SUS RD-20_020714_01 DIS	Europium-152	R	A	Sample result verification (*VIII)
280-51959-1/ 14-02037-OR	EB_RD-07_020714 SUS RD-07_020714_01A SUS RD-21_020714_01 SUS RD-20_020714_01 SUS RD-18_020714_01 SUS RD-18_020714_36 SUS RD-86_020714_01 SUS EB_RD-07_020714 DIS RD-07_020714_01A DIS RD-21_020714_01 DIS RD-20_020714_01 DIS RD-18_020714_01 DIS RD-18_020714_36 DIS RD-86_020714_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG

gmy

LDC #: 31547C35 **VALIDATION COMPLETENESS WORKSHEET**  
 SDG #: 280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02218-OR Level V  
 Laboratory : Test America, Inc./Eberline Analytical Corporation

Date: 3-27-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-7-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	gmy SW <sub>x</sub>	
IX.	Overall assessment of data	↓ SW A	
X.	Field duplicates	ND	D = 5+6, D = 12+13
XI.	Field blanks	ND	EB = 1, 8

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

EB = EB-RD-90-021214 SUS } SDG: 280-52126-1/  
 EB = EB-RD-90-021214 DIS } 14-02066-OR  
 FB = FB-021214-19 SUS } SDG: 280-52126-1/14-02067-OR  
 FB = FB-021214-19 DIS }

Validated Samples:  
all water

1	EB RD-07_020714 SUS	11	RD-20_020714_01 DIS	21		31	
2	RD-07_020714_01A SUS	12	RD-18_020714_01 DIS	22		32	
3	RD-21_020714_01 SUS	13	RD-18_020714_36 DIS	23		33	
4	RD-20_020714_01 SUS	14	RD-86_020714_01 DIS	24		34	
5	RD-18_020714_01 SUS	15	RD-07_020714_01A DISDUP	25		35	
6	RD-18_020714_36 SUS	16		26		36	
7	RD-86_020714_01 SUS	17		27		37	
8	EB RD-07_020714 DIS	18		28		38	PBW
9	RD-07_020714_01A DIS	19		29		39	PBW
10	RD-21_020714_01 DIS	20		30		40	

Notes: "SUS" is particulate EB = EB-PZ-109-021314 SUS } SDG:  
"DIS" is dissolved EB = EB-PZ-109-021314 DIS } 280-52128-1/  
 14-02062-OR



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Americium & Curium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-1/14-02037-OR

### Sample Identification

RD-29\_020714\_01 SUS  
RD-86\_020714\_01 SUS  
RD-29\_020714\_01 DIS  
RD-86\_020714\_01 DIS  
RD-29\_020714\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 5 water samples listed on the cover sheet. The analyses were per Method EiChrom AM-01 for Americium and Curium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Americium-241	0.10 pCiL	RD-29_020714_01 SUS RD-29_020714_01 DIS

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Chemical Recovery

All chemical recoveries were within validation criteria with the following exceptions:

Sample ID	Isotope	%R (Limits)	Affected Isotope	Flag	A or P
RD-29_020714_01 SUS	Americium-243	113.18 (30-110)	Americium-241 Curium-243/244	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A
RD-86_020714_01 SUS	Americium-243	112.49 (30-110)	Curium-243/244	J (all detects) UJ (all non-detects)	A

### VIII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02037-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02037-OR	RD-29_020714_01 SUS	Americium-241 Curium-243/244	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Chemical recovery (*VII)
280-51959-1/ 14-02037-OR	RD-86_020714_01 SUS	Curium-243/244	J (all detects) UJ (all non-detects)	A	Chemical recovery (*VII)
280-51959-1/ 14-02037-OR	RD-29_020714_01 SUS RD-86_020714_01 SUS RD-29_020714_01 DIS RD-86_020714_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG

Americium and Curium <sup>9mH</sup>

**METHOD:** Alpha Spectroscopy (Method EiChrom Am-01)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-7-14
IIa.	Initial calibration	N	
IIb.	Calibration verification	N	
III.	Blanks	SW	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
IVa.	Laboratory control samples	A	LCS
V.	Sample specific chemical recovery	SW	
VI.	Radionuclide Quantitation & Implied Detection Limits MDA	A	
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:  
 all water

1	RD-29_020714_01 SUS	11		21		31	
2	RD-86_020714_01 SUS	12		22		32	
3	RD-29_020714_01 DIS	13		23		33	
4	RD-86_020714_01 DIS	14		24		34	
5	RD-29_020714_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Radiochemistry, Method EiChrom Am-01

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** 1,3 (ND)

Isotope	Blank ID	Blank Action Limit	Sample Identification											
	PB													
Am-241	0.10	0.50												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 3, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR

### Sample Identification

EB\_RD-07\_020714 SUS  
RD-07\_020714\_01A SUS  
RD-20\_020714\_01 SUS  
RD-18\_020714\_01 SUS  
RD-18\_020714\_36 SUS  
RD-86\_020714\_01 SUS  
EB\_RD-07\_020714 DIS  
RD-07\_020714\_01A DIS  
RD-20\_020714\_01 DIS  
RD-18\_020714\_01 DIS  
RD-18\_020714\_36 DIS  
RD-86\_020714\_01 DIS  
RD-07\_020714\_01A SUSDUP  
EB\_RD-07\_020714 DISDUP  
RD-07\_020714\_01A DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 908.0 for Isotopic Uranium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Uranium-233/234	0.17 pCi/L	RD-07_020714_01A DIS RD-20_020714_01 DIS RD-18_020714_01 DIS RD-18_020714_36 DIS RD-86_020714_01 DIS

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks with the following exceptions:

Sample	Isotope	Reported Activity	Modified Final Activity
RD-86_020714_01 DIS	Uranium-233/234	0.53 pCi/L	0.53U pCi/L

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS were identified as equipment blanks. No contaminants were found.

Samples FB\_021214\_19SUS and FB\_021214\_19DIS (both from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No contaminants were found with the following exceptions:

Blank ID	Sampling Date	Isotope	Activity	Associated Samples
FB_021214_19DIS	2/12/14	Uranium-233/234	0.15 pCi/L	RD-07_020714_01A DIS

Sample activities were compared to activities detected in the field blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW1	Uranium-232	130.84 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-86_020714_01 DIS	Uranium-232	118.34 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-18_020714_36 DIS	Uranium-232	117.46 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
PBW2	Uranium-232	123.28 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
PBW3	Uranium-232	116.11 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
EB_RD-07_020714 SUS	Uranium-232	120.22 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

### VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
EB_RD-07_020714 DISDUP	Uranium-233/234	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02037-OR/ 14-02112-OR/14-02118-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples RD-18\_020714\_01 SUS and RD-18\_020714\_36 SUS and samples RD-18\_020714\_01 DIS and RD-18\_020714\_36 DIS were identified as field duplicates. No target radioactive analytes were detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01 DIS	RD-18_020714_36 DIS			
Uranium-233/234	4.2	4.3	2 (≤35)	-	-

Isotope	Activity (pCi/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01 DIS	RD-18_020714_36 DIS			
Uranium-235	0.11U	0.34	102 (≤35)	NQ	-
Uranium-238	4.0	3.4	16 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02037-OR/ 14-02112-OR/ 14-02118-OR	RD-86_020714_01 DIS RD-18_020714_36 DIS EB_RD-07_020714 SUS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-51959-1/ 14-02037-OR/ 14-02112-OR/ 14-02118-OR	EB_RD-07_020714 SUS RD-07_020714_01A SUS RD-20_020714_01 SUS RD-18_020714_01 SUS RD-18_020714_36 SUS RD-86_020714_01 SUS EB_RD-07_020714 DIS RD-07_020714_01A DIS RD-20_020714_01 DIS RD-18_020714_01 DIS RD-18_020714_36 DIS RD-86_020714_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR**

SDG	Sample	Isotope	Modified Final Concentration	A or P	Code
280-51959-1/ 14-02037-OR/ 14-02112-OR/ 14-02118-OR	RD-86_020714_01 DIS	Uranium-233/234	0.53U pCi/L	A	B

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR/14-02118-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-7-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	SW	
X.	Overall assessment of data	SW A	
XI.	Field duplicates	SW	D = 4*5* D = 10+11
XII.	Field blanks	SW	EB = 1*7*

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SDG: 280-52126-1/  
 14-02067-OR

Validated Samples:  
 all water

FB = FB-021214-19 SUS\*  
 FB = FB-021214-19 DIS

1	3	EB_RD-07_020714 SUS	11	1	RD-18_020714_36 DIS	21		31	
2	2	RD-07_020714_01A SUS	12	1	RD-86_020714_01 DIS	22		32	
3	2	RD-20_020714_01 SUS	13	2	RD-07_020714_01A SUSDUP	23		33	
4	2	RD-18_020714_01 SUS	14	3	EB_RD-07_020714 DISDUP	24		34	
5	2	RD-18_020714_36 SUS	15	1	RD-07_020714_01A DISDUP	25		35	
6	2	RD-86_020714_01 SUS	16			26		36	
7	3	EB_RD-07_020714 DIS	17			27		37	
8	1	RD-07_020714_01A DIS	18			28		38	1 PBW1
9	1	RD-20_020714_01 DIS	19			29		39	2 PBW2
10	1	RD-18_020714_01 DIS	20			30		40	3 PBW3

Notes: "SUS" is particulate  
 "DIS" is dissolved

EB = EB-PZ-109  
 EB = EB-PZ-109

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Radiochemistry, Method 908.0

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** 8-12 **Qual:** U (B)

Isotope	Blank ID	Blank Action Limit	Sample Identification										
	PB		12										
U-233/234	0.17	0.85	0.53										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** Radiochemistry (Method: 908.0)

Y N N/A Were field blanks identified in this SDG?  
Y N N/A Were target isotopes detected in the field blanks?

**Blank units:** pCi/L **Associated sample units:** pCi/L

**Sampling date:** 2/12/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 8 (>5x)

Analyte	Blank ID	Sample Identification												
		Action Level	No Qual.											
	FB_021214_19DIS													
U-233/234	0.15	0.75												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".





VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Radiochemistry (908.0)

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	10	11		
U-233/234	4.2	4.3	2	
U-235	0.11U	0.34	102	No Qual.
U-238	4.0	3.4	16	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-1/14-02037-OR/14-02112-OR

### Sample Identification

RD-07\_020714\_01A SUS  
RD-21\_020714\_01 SUS  
RD-20\_020714\_01 SUS  
RD-18\_020714\_01 SUS  
RD-18\_020714\_36 SUS  
RD-29\_020714\_01 SUS  
RD-07\_020714\_01A DIS  
RD-21\_020714\_01 DIS  
RD-20\_020714\_01 DIS  
RD-18\_020714\_01 DIS  
RD-18\_020714\_36 DIS  
RD-29\_020714\_01 DIS  
RD-86\_020714\_01 DIS  
RD-07\_020714\_01A DISDUP  
RD-07\_020714\_01A SUSDUP

Samples ending in "SUS" were reported for particulate only  
Samples ending in "DIS" were reported for dissolved only

## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_PZ-109\_021314 SUS and EB\_PZ-109\_021314 DIS (from SDG 280-52128-1/14-02117-OR) were identified as equipment blanks. No strontium-90 was found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No strontium-90 was found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-86_020714_01 DIS	Strontium-90	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02037-OR/ 14-02112-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

Samples RD-18\_020714\_01 SUS and RD-18\_020714\_36 SUS and samples RD-18\_020714\_01 DIS and RD-18\_020714\_36 DIS were identified as field duplicates. No strontium-90 was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02037-OR/ 14-02112-OR	RD-86_020714_01 DIS	Strontium-90	R	A	Sample result verification (*IX)
280-51959-1/ 14-02037-OR/ 14-02112-OR	RD-07_020714_01A SUS RD-21_020714_01 SUS RD-20_020714_01 SUS RD-18_020714_01 SUS RD-18_020714_36 SUS RD-29_020714_01 SUS RD-07_020714_01A DIS RD-21_020714_01 DIS RD-20_020714_01 DIS RD-18_020714_01 DIS RD-18_020714_36 DIS RD-29_020714_01 DIS RD-86_020714_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR/14-02112-OR**

No Sample Data Qualified in this SDG

gmA

LDC #: 31547C61

VALIDATION COMPLETENESS WORKSHEET

Date: 3-27-14

SDG #: 280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR-14-02118-OR Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG

2nd Reviewer: [Signature]

METHOD: Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-7-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	gmA SW <sub>x</sub>	
X.	Overall assessment of data	↓ SWA	
XI.	Field duplicates	ND	D = 4 + 5, D = 10 + 11
XII.	Field blanks	ND	FB = FB-021214-19 SUS } FB = FB-021214-19 DIS } SDG: 280-52126-1/ 14-02067-OR

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
all water

EB = EB-PZ-109-021314 SUS } SDG: 280-52128-1/  
EB = EB-PZ-109-021314 DIS } 14-02117-OR

1	2	RD-07_020714_01A SUS	11	1	RD-18_020714_36 DIS	21		31	
2	2	RD-21_020714_01 SUS	12	1	RD-29_020714_01 DIS	22		32	
3	2	RD-20_020714_01 SUS	13	1	RD-86_020714_01 DIS	23		33	
4	2	RD-18_020714_01 SUS	14	1	# 7 DUP	24		34	
5	2	RD-18_020714_36 SUS	15	2	# 1 DUP	25		35	
6	2	RD-29_020714_01 SUS	16			26		36	
7	1	RD-07_020714_01A DIS	17			27		37	
8	1	RD-21_020714_01 DIS	18			28		38	
9	1	RD-20_020714_01 DIS	19			29		39	1 PBW 1
10	1	RD-18_020714_01 DIS	20			30		40	2 PBW 2

Notes: "SUS" is particulate  
"DIS" is dissolved



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Plutonium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-1/14-02037-OR

### Sample Identification

RD-29\_020714\_01 SUS  
RD-86\_020714\_01 SUS  
RD-29\_020714\_01 DIS  
RD-86\_020714\_01 DIS  
RD-29\_020714\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Isotopic Plutonium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

Tracer recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-1/14-02037-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-1/ 14-02037-OR	RD-29_020714_01 SUS RD-86_020714_01 SUS RD-29_020714_01 DIS RD-86_020714_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Laboratory Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Field Blank Data Qualification Summary - SDG 280-51959-1/14-02037-OR**

No Sample Data Qualified in this SDG



9/14

**METHOD:** Isotopic Plutonium (DOE EML HASL-300)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

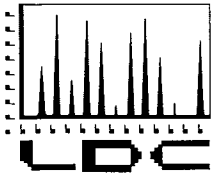
	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-7-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	
XII.	Tracer	A	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	RD-29_020714_01 SUS	11		21		31	
2	RD-86_020714_01 SUS	12		22		32	
3	RD-29_020714_01 DIS	13		23		33	
4	RD-86_020714_01 DIS	14		24		34	
5	RD-29_020714_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31547:

#### SDG #

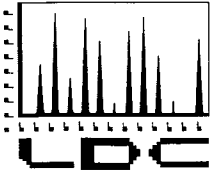
280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

#### Fraction

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', with a long, sweeping flourish extending from the end of the name.

Pei Geng  
Project Manager/Senior Chemist



LDC	SDG#	DATE REC'D	(3) DATE DUE	Iodine -129 (902.0)		D.Iodine -129 (902.0)		Neptunium -236 (HASL)		Diss. Neptunium -236																									
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																			
D	280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02065-OR/ 14-02068-OR	03/25/14	04/01/14	-	-	-	-	2	0	2	0																								
E	280-52126-1/ 14-02066-OR/ 14-02067-OR/ 14-02069-OR	03/25/14	04/01/14	1	0	1	0	-	-	-	-																								
Total	T/PG			1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02056-OR

**Sample Identification**

RD-34A\_021114\_01 SUS  
RD-34C\_021114\_01 SUS  
PZ-105\_021114\_01 SUS  
RD-13\_021114\_01 SUS  
RD-13\_021114\_36 SUS  
RD-34A\_021114\_01 DIS  
RD-34C\_021114\_01 DIS  
PZ-105\_021114\_01 DIS  
RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS  
RD-34C\_021114\_01 SUSMS  
RD-34C\_021114\_01 SUSMSD  
RD-34C\_021114\_01 DISMS  
RD-34C\_021114\_01 DISMSD  
RD-34C\_021114\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Gross Alpha	0.15 pCi/L	All samples in SDG 280-52030-1/14-02056-OR

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks.

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS (from SDG 280-51959-1/14-02118-OR) were identified as equipment blanks. No gross alpha or beta was found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gross alpha or beta was found.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Isotope	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-34C_021114_01 DISMS/MSD (RD-34C_021114_01 DIS)	Gross Alpha	74 (75-125)	-	-	J (all detects) UJ (all non-detects)	A



Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Isotope	Normalized Difference (Limits)	Flag	A or P
RD-34C_021114_01 DISDUP (All samples in SDG 280-52030-1/14-02056-OR)	Gross Alpha	3.45 ( $\leq 3$ )	J (all detects) UJ (all non-detects)	A

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross Alpha	76 (80-120)	All samples in SDG 280-52030-1/14-02056-OR	J (all detects) UJ (all non-detects)	P

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02056-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

Samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS and samples RD-13\_021114\_01 SUS and RD-13\_021114\_36 SUS were identified as field duplicates. No gross alpha or beta was detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01 DIS	RD-13_021114_36 DIS			
Gross Alpha	6.0	22	114 ( $\leq 35$ )	J (all detects)	A
Gross Beta	4.9	3.7	28 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02056-OR	RD-34C_021114_01 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (normalized difference) (E)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)
280-52030-1/ 14-02056-OR	RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects)	A	Field duplicates (RPD) (*XI)

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-52030-  
1/14-02056-OR**

No Sample Data Qualified in this SDG

my

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	SW	MS/MSD DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 4* + 5* D = 9 + 10
XI.	Field blanks	ND	EB = EB-RD-07-020714 SUS } SDG: 280-51959-1 ✓ EB = EB-RD-07-020714 DIS } 14-02118-OR FB = FB-021214-19 SUS } SDG: 280-52126-1 ✓ EB = Equipment blank } 14-02067-OR FB = FB-021214-19 DIS }

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	RD-34A_021114_01 SUS	11	RD-34C_021114_01 SUSMS	21		31	
2	RD-34C_021114_01 SUS	12	RD-34C_021114_01 SUSMSD	22		32	
3	PZ-105_021114_01 SUS	13	RD-34C_021114_01 DISMS	23		33	
4	RD-13_021114_01 SUS	14	RD-34C_021114_01 DISMSD	24		34	
5	RD-13_021114_36 SUS	15	# 7 DUP	25		35	
6	RD-34A_021114_01 DIS	16		26		36	
7	RD-34C_021114_01 DIS	17		27		37	
8	PZ-105_021114_01 DIS	18		28		38	
9	RD-13_021114_01 DIS	19		29		39	
10	RD-13_021114_36 DIS	20		30		40	PBW

Notes: "SUS" is particulate  
 "DIS" is dissolved

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** Radiochemistry, Method 900.0

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** all (>5x or ND)

Isotope	Blank ID	Blank Action Limit	Sample Identification											
			No Qual's.											
	PB													
Gross Alpha	0.15	0.75												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".







LDC #: 31547D22

SDG #: —

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample (LCS)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: F

METHOD: Radiochemistry (Method: 900.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a laboratory control sample (LCS) analyzed at the required frequency in this SDG?

Y N N/A Were all LCS percent recoveries (%R) within the control limits of 75-125%?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	LCS ID	Matrix	Isotope	%R (limits)	Associated Samples	Qualifications
1	LCS	water	Gross Alpha	76 (80-120)	all	J/UJ/P (L)

Comments: \_\_\_\_\_

Method: Radiochemistry (900.0)

Analyte	Activity (pCi/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	9	10		
Gross Alpha	6.0	22	114	J dets/ A (X)
Gross Beta	4.9	3.7	28	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02065-OR

**Sample Identification**

RD-34A\_021114\_01  
RD-34C\_021114\_01  
RD-93\_021114\_01A  
RD-13\_021114\_01  
RD-13\_021114\_36  
PZ-041\_021114\_01  
RD-95\_021114\_01  
RD-34A\_021114\_01DUP  
RD-34C\_021114\_01MS  
RD-34C\_021114\_01MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Sample FB\_021214\_19 (from SDG 280-52126-1/14-02069-OR) was identified as a field blank. No tritium was found with the following exceptions:

Blank ID	Sampling Date	Isotope	Activity	Associated Samples
FB_021214_19	2/12/14	Tritium	540 pCi/L	RD-93_021114_01A PZ-041_021114_01 RD-95_021114_01

Sample activities were compared to activities detected in the field blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02065-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-13\_021114\_01 and RD-13\_021114\_36 were identified as field duplicates. No tritium was detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01	RD-13_021114_36			
Tritium	540	180U	100 ( $\leq 35$ )	NQ	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Data Qualification Summary - SDG 280-52030-1/14-02065-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02065-OR	RD-34A_021114_01 RD-34C_021114_01 RD-93_021114_01A RD-13_021114_01 RD-13_021114_36 PZ-041_021114_01 RD-95_021114_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02065-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02065-OR**

No Sample Data Qualified in this SDG

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/MSD DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 4+5
XI.	Field blanks	SW	FB = FB-021214-19 (SDG: 280-52126-1/14-02069-OR)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
*all water*

1	RD-34A_021114_01	11		21		31	
2	RD-34C_021114_01	12		22		32	
3	RD-93_021114_01A	13		23		33	
4	RD-13_021114_01	14		24		34	
5	RD-13_021114_36	15		25		35	
6	PZ-041_021114_01	16		26		36	
7	RD-95_021114_01	17		27		37	
8	RD-34A_021114_01DUP	18		28		38	
9	RD-34C_021114_01MS	19		29		39	
10	RD-34C_021114_01MSD	20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Radiochemistry (Method: 906.0)

N N/A Were field blanks identified in this SDG?

N N/A Were target isotopes detected in the field blanks?

**Blank units:** pCi/L **Associated sample units:** pCi/L

**Sampling date:** 2/12/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 3,6,7 (>5x or ND)

Analyte	Blank ID	Sample Identification												
	FB_021214_19	Action Level	No Qua'sl.											
Tritium	540	2700												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Radiochemistry (906.0)

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	4	5		
Tritium	540	180U	100	No Qual.

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/1402056-OR/14-02057-OR

### Sample Identification

RD-34A\_021114\_01 SUS  
RD-34C\_021114\_01 SUS  
PZ-105\_021114\_01 SUS  
RD-13\_021114\_01 SUS  
RD-13\_021114\_36 SUS  
RD-95\_021114\_01 SUS  
RD-34A\_021114\_01 DIS  
RD-34C\_021114\_01 DIS  
PZ-105\_021114\_01 DIS  
RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS  
RD-95\_021114\_01 DIS  
RD-34A\_021114\_01 DISDUP  
RD-95\_021114\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 14 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS, EB\_RD-07\_020714 DIS (from SDG 280-51959-1/14-02037-OR), EB\_RD-90-021214 SUS, EB\_RD-90-021214 DIS (from SDG 280-52126-1/14-02066-OR), EB\_PZ-109\_021314 SUS, EB\_PZ-109\_021314 DIS (from SDG 280-52128-1/14-02062-OR) were identified as equipment blanks. No gamma emitting radionuclides were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gamma emitting radionuclides were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-34A_021114_01 SUS RD-34C_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS	Europium-154	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-34A_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS	Europium-154	Non-detect result is greater than the MDA.	R	A
RD-13_021114_36 DIS	Europium-152	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-13_021114_36 DIS	Europium-152	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/1402056-OR/ 14-02057-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-13\_021114\_01 SUS and RD-13\_021114\_36 SUS and samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS were identified as field duplicates. No gamma emitting radionuclides were detected in any of the samples.

Samples PZ-105\_021114\_03 SUS (from SDG 14B059A/343031) and PZ-105\_021114\_01 SUS and samples PZ-105\_021114\_03DIS (from SDG 14B059A/343031) and PZ-105\_021114\_01 DIS were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Data Qualification Summary - SDG 280-52030-1/1402056-OR/14-02057-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 1402056-OR/ 14-02057-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS	Europium-154	R	A	Sample result verification (*VIII)
280-52030-1/ 1402056-OR/ 14-02057-OR	RD-13_021114_36 DIS	Europium-152	R	A	Sample result verification (*VIII)
280-52030-1/ 1402056-OR/ 14-02057-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS RD-95_021114_01 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS RD-95_021114_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/1402056-OR/14-02057-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-52030-1/1402056-OR/14-02057-OR**

No Sample Data Qualified in this SDG

LDC #: 31547D35 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52030-1/14-02056-OR/14-02057-OR Level V

Laboratory : Test America, Inc./Eberline Analytical Corporation

Date: 3-28-14

Page: 1 of 1

Reviewer: MG  
2nd Reviewer: A

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	gml ↓ SW N	split = 3 + PZ-105_02114_03SUS } (14B059A/34/30;
IX.	Overall assessment of data	SW A	split = 9 + PZ-105_02114_03DIS
X.	Field duplicates	ND	D = 4 + 5 D = 10 + 11
XI.	Field blanks	ND	EB = EB_RD-07_020714SUS } SDG: 280-51959-1 ✓ EB = EB_RD-07_020714DIS } # 14-02037-C

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
all water

EB = EB\_RD-90\_021214SUS } SDG: 280-52126-1/  
EB = EB\_RD-90\_021214DIS } 14-02066-OR

1	RD-34A_021114_01 SUS	11	RD-13_021114_36 DIS	21		31	
2	RD-34C_021114_01 SUS	12	RD-95_021114_01 DIS	22		32	
3	PZ-105_021114_01 SUS	13	RD-34A_021114_01 DISDUP	23		33	
4	RD-13_021114_01 SUS	14	RD-95_021114_01 DISDUP	24		34	
5	RD-13_021114_36 SUS	15		25		35	
6	RD-95_021114_01 SUS	16		26		36	
7	RD-34A_021114_01 DIS	17		27		37	
8	RD-34C_021114_01 DIS	18		28		38	
9	PZ-105_021114_01 DIS	19		29		39	PBW1
10	RD-13_021114_01 DIS	20		30		40	PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved

FB = FB-021214-19SUS } SDG: 280-52126-1/  
FB = FB-021214-19DIS } 14-02067-OR  
EB = EB-PZ-109-021314SUS } SDG:  
EB = EB-PZ-109-021314DIS } 280-52128-1/  
14-02062-OR





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Americium & Curium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02056-OR

### Sample Identification

RD-13\_021114\_01 SUS  
RD-13\_021114\_36 SUS  
RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS  
RD-13\_021114\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet. The analyses were per Method EiChrom AM-01 for Americium and Curium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Chemical Recovery**

All chemical recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02056-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples RD-13\_021114\_01 SUS and RD-13\_021114\_36 SUS and samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS were identified as field duplicates. No americium or curium was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02056-OR	RD-13_021114_01 SUS RD-13_021114_36 SUS RD-13_021114_01 DIS RD-13_021114_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

*Americium and Curium*

**METHOD:** Alpha Spectroscopy (Method EiChrom Am-01)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
IIa.	Initial calibration	N	
IIb.	Calibration verification	N	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
IVa.	Laboratory control samples	A	LCS
V.	Sample specific chemical recovery	A	
VI.	<del>Radionuclide Quantitation &amp; Implied Detection Limits</del> MDA	A	
VII.	Sample result verification	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D = 1+2      D = 3+4
X.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
*all water*

1	RD-13_021114_01 SUS	11		21		31	
2	RD-13_021114_36 SUS	12		22		32	
3	RD-13_021114_01 DIS	13		23		33	
4	RD-13_021114_36 DIS	14		24		34	
5	RD-13_021114_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 3, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02056-OR

### Sample Identification

RD-34A\_021114\_01 SUS  
RD-34C\_021114\_01 SUS  
PZ-105\_021114\_01 SUS  
RD-13\_021114\_01 SUS  
RD-13\_021114\_36 SUS  
RD-34A\_021114\_01 DIS  
RD-34C\_021114\_01 DIS  
PZ-105\_021114\_01 DIS  
RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS  
RD-34C\_021114\_01 SUSMS  
RD-34C\_021114\_01 SUSMSD  
RD-34C\_021114\_01 DISMS  
RD-34C\_021114\_01 DISMSD  
RD-34C\_021114\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 908.0 for Isotopic Uranium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS (both from SDG 280-51959-1/14-02118-OR) were identified as equipment blanks. No contaminants were found.

Samples FB\_021214\_19SUS and FB\_021214\_19DIS (both from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No contaminants were found with the following exceptions:

Blank ID	Sampling Date	Isotope	Activity	Associated Samples
FB_021214_19DIS	2/12/14	Uranium-233/234	0.15 pCi/L	PZ-105_021114_01 DIS

Sample activities were compared to activities detected in the field blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW	Uranium-232	131.58 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-34A_021114_01 DIS	Uranium-232	113.84 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-34A_021114_01 SUS	Uranium-232	128.07 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-34C_021114_01 SUS	Uranium-232	134.46 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
PZ-105_021114_01 SUS	Uranium-232	127.82 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-13_021114_01 DIS	Uranium-232	120.55 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-13_021114_36 SUS	Uranium-232	139.70 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-34C_021114_01 DISMS	Uranium-232	132.88 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-34C_021114_01 DISMSD	Uranium-232	117.62 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-34C_021114_01 SUSMS	Uranium-232	130.42 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-34C_021114_01 SUSMSD	Uranium-232	116.41 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

### VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02056-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples RD-13\_021114\_01 SUS and RD-13\_021114\_36 SUS and samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS were identified as field duplicates. No target radioactive analytes were detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01 SUS	RD-13_021114_36 SUS			
Uranium-238	0.24	0.073U	107 (≤35)	NQ	-

Isotope	Activity (pCi/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01 DIS	RD-13_021114_36 DIS			
Uranium-233/234	2.4	2.9	19 (≤35)	-	-
Uranium-238	1.5	1.7	13 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 DIS RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 DIS RD-13_021114_36 SUS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

LDC #: 31547D59 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52030-1/14-02056-OR/14-02057-OR/14-02066-OR Level V

Laboratory: Test America, Inc./Eberline Analytical Corporation *MA*

Date: 3-28-14

Page: 1 of 1

Reviewer: *MG*

2nd Reviewer: *[Signature]*

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/MSD DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	SW	D = 4+5 D = 9+10
XII.	Field blanks	SW	EB=EB-RD-07-020714 SUS* } SDG: 280-51959-1 / 14-02118-OR

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

\* = ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
*all water*

EB=EB-RD-07-020714 DIS\* } SDG: 280-52126-1 / 14-02067-OR  
FB=FB-021214-19 SUS\* }  
FB=FB-021214-19 DIS }

1	RD-34A_021114_01 SUS	11	RD-34C_021114_01 SUSMS	21		31	
2	RD-34C_021114_01 SUS	12	RD-34C_021114_01 SUSMSD	22		32	
3	PZ-105_021114_01 SUS	13	RD-34C_021114_01 DISMS	23		33	
4	RD-13_021114_01 SUS	14	RD-34C_021114_01 DISMSD	24		34	
5	RD-13_021114_36 SUS	15	RD-34C_021114_01 DISDUP	25		35	
6	RD-34A_021114_01 DIS	16		26		36	
7	RD-34C_021114_01 DIS	17		27		37	
8	PZ-105_021114_01 DIS	18		28		38	
9	RD-13_021114_01 DIS	19		29		39	
10	RD-13_021114_36 DIS	20		30		40	PBW

Notes: "SUS" is particulate  
"DIS" is dissolved

## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Radiochemistry (Method: 908.0)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target isotopes detected in the field blanks?

**Blank units:** pCi/L **Associated sample units:** pCi/L

**Sampling date:** 2/12/14 Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 8 (>5x)

Analyte	Blank ID	Sample Identification												
	FB_021214_19DIS	Action Level	No Qual.											
U-233/234	0.15	0.75												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".





Method: Radiochemistry (908.0)

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	4	5		
U-238	0.24	0.073U	107	No Qual.

Method: Radiochemistry (908.0)

Analyte	Activity (pCi/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	9	10		
U-233/234	2.4	2.9	19	
U-238	1.5	1.7	13	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02056-OR/14-02057-OR

### Sample Identification

RD-34A\_021114\_01 SUS  
RD-34C\_021114\_01 SUS  
PZ-105\_021114\_01 SUS  
RD-13\_021114\_01 SUS  
RD-13\_021114\_36 SUS  
PZ-120\_021114\_01 SUS  
RD-95\_021114\_01 SUS  
RD-34A\_021114\_01 DIS  
RD-34C\_021114\_01 DIS  
PZ-105\_021114\_01 DIS  
RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS  
PZ-120\_021114\_01 DIS  
RD-95\_021114\_01 DIS  
RD-34C\_021114\_01 SUSMS  
RD-34C\_021114\_01 SUSMSD  
RD-34C\_021114\_01 DISMS  
RD-34C\_021114\_01 DISMSD  
PZ-120\_021114\_01 DISDUP  
RD-34A\_021114\_01 DISDUP

Samples ending in "SUS" were reported for particulate only  
Samples ending in "DIS" were reported for dissolved only

## Introduction

This data review covers 20 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_PZ-109\_021314 SUS and EB\_PZ-109\_021314 DIS (from SDG 280-52128-1/14-02117-OR) were identified as equipment blanks. No strontium-90 was found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No strontium-90 was found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02056-OR/ 14-02057-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

Samples RD-13\_021114\_01 SUS and RD-13\_021114\_36 SUS and samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS were identified as field duplicates. No strontium-90 was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 280-52030-1/14-02056-OR/14-02057-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02056-OR/ 14-02057-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS PZ-120_021114_01 SUS RD-95_021114_01 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS PZ-120_021114_01 DIS RD-95_021114_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR/14-02057-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR/14-02057-OR**

No Sample Data Qualified in this SDG

LDC #: 31547D61

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3-28-14

SDG #: 280-52030-1/14-02056-OR/14-02057-OR/14-02068-OR

Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation *mm*

Reviewer: *MG*

2nd Reviewer: *Q*

**METHOD: Strontium-90 (EPA Method 905.0)**

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP MS/MSD
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	ND	D = 4+5 D = 11+12
XII.	Field blanks	ND	FB = FB-021214-19 SUS } SDG: 280-52126-1/

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

FB = FB-021214-19 DIS } SDG: 14-02067-OR  
EB = EB-PZ-109-021314 SUS } SDG: 280-52128-1/  
EB = EB-PZ-109-021314 DIS } SDG: 14-02117-OR

Validated Samples:  
all water

1	RD-34A_021114_01 SUS	11	RD-13_021114_01 DIS	21		31	
2	RD-34C_021114_01 SUS	12	RD-13_021114_36 DIS	22		32	
3	PZ-105_021114_01 SUS	13 <sup>2</sup>	PZ-120_021114_01 DIS	23		33	
4	RD-13_021114_01 SUS	14 <sup>2</sup>	RD-95_021114_01 DIS	24		34	
5	RD-13_021114_36 SUS	15	RD-34C_021114_01 SUSMS	25		35	
6	PZ-120_021114_01 SUS	16	RD-34C_021114_01 SUSMSD	26		36	
7	RD-95_021114_01 SUS	17	RD-34C_021114_01 DISMS	27		37	
8	RD-34A_021114_01 DIS	18	RD-34C_021114_01 DISMSD	28		38	
9	RD-34C_021114_01 DIS	19 <sup>2</sup>	PZ-120_021114_01 DISDUP	29		39	PBW1
10	PZ-105_021114_01 DIS	20	#8 DUP	30		40	PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Plutonium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02056-OR/14-02057-OR/14-02068-OR

**Sample Identification**

RD-13\_021114\_01 SUS  
RD-13\_021114\_36 SUS  
RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS  
RD-13\_021114\_01 DIS DUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Isotopic Plutonium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

Tracer recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/ 14-02056-OR/14-02057-OR/14-02068-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples RD-13\_021114\_01 SUS and RD-13\_021114\_36 SUS and samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS were identified as field duplicates. No isotopic plutonium was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Isotopic Plutonium - Data Qualification Summary - SDG 280-52030-1/14-02056-OR/14-02057-OR/14-02068-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02068-OR	RD-13_021114_01 SUS RD-13_021114_36 SUS RD-13_021114_01 DIS RD-13_021114_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Isotopic Plutonium - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR/14-02057-OR/14-02068-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Isotopic Plutonium - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR/14-02057-OR/14-02068-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Plutonium (DOE EML HASL-300)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: <u>2-11-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	ND	D = 3 + 4      D = 7 + 8
XI.	Field blanks	N	<del>EB = 1, 5</del>
XII.	Tracer	A	<u>9mL</u>

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

9mL ↓	1	<del>EB-RD-03-021114</del> SUS	11		21		31	
	2	<del>RD-03-021114-01A</del> SUS	12		22		32	
	3	RD-13-021114-01	13		23		33	
	4	RD-13-021114-36	14		24		34	
9mL ↓	5	<del>EB-RD-03-021114</del> DIS	15		25		35	
	6	<del>RD-03-021114-01A</del> DIS	16		26		36	
	7	RD-13-021114-01	17		27		37	
9mL ↓	8	RD-13-021114-36	18		28		38	
	9	<del>EB-RD-03-021114</del> DIS-DUP	19		29		39	
	10	RD-13-021114-01	20		30		40	PBW

Notes: "SUS" is particulate  
"DIS" is dissolved

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Neptunium-236  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02068-OR

### Sample Identification

EB\_RD-93\_021114 SUS  
RD-93\_021114\_01A SUS  
EB\_RD-93\_021114 DIS  
RD-93\_021114\_01A DIS  
EB\_RD-93\_021114 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Neptunium-236.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-93\_021114 SUS and EB\_RD-93\_021114 DIS were identified as field blanks. No contaminants were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (both from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No contaminants were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

All tracer recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02068-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Neptunium-236 - Data Qualification Summary - SDG 280-52030-1/14-02068-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02068-OR	EB_RD-93_021114 SUS RD-93_021114_01A SUS EB_RD-93_021114 DIS RD-93_021114_01A DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Neptunium-236 - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02068-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Neptunium-236 - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02068-OR**

No Sample Data Qualified in this SDG

**METHOD:** Neptunium-236 (DOE EML HASL-300)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-11-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	ND	EB = 1, 3
XII.	Tracer	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

all water

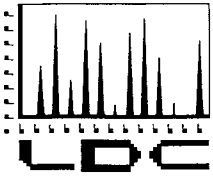
FB = FB-021214-19 SUS

FB = ~~FB-021214~~ FB-021214-19 DIS

SDG: } 280-52126-1/  
14-02067-OR

1	EB_RD-93_021114 SUS	11		21		31	
2	RD-93_021114_01A SUS	12		22		32	
3	EB_RD-93_021114 DIS	13		23		33	
4	RD-93_021114_01A DIS	14		24		34	
5	EB_RD-93_021114 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31547:

#### SDG #

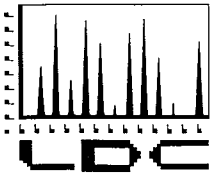
280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

#### Fraction

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', with a long, sweeping flourish extending from the end of the name.

Pei Geng  
Project Manager/Senior Chemist







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02066-OR/14-02067-OR

**Sample Identification**

RD-54A\_021214\_01 SUS  
RD-85\_021214\_01 SUS  
FB\_021214\_19 SUS  
RD-33A\_021214\_01 SUS  
RD-50\_021214\_01 SUS  
RD-54A\_021214\_01 DIS  
RD-85\_021214\_01 DIS  
FB\_021214\_19 DIS  
RD-33A\_021214\_01 DIS  
RD-50\_021214\_01 DIS  
RD-54A\_021214\_01 DISDUP  
RD-33A\_021214\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 12 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS (from SDG 280-51959-1/14-02118-OR) were identified as equipment blanks. No gross alpha or beta was found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No gross alpha or beta was found.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Isotope	Normalized Difference (Limits)	Flag	A or P
RD-33A_021214_01 DISDUP (FB_021214_19 SUS RD-33A_021214_01 SUS RD-50_021214_01 SUS FB_021214_19 DIS RD-33A_021214_01 DIS RD-50_021214_01 DIS)	Gross Alpha	3.37 ( $\leq 3$ )	J (all detects) UJ (all non-detects)	A

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross Beta	130 (80-120)	RD-54A_021214_01 SUS RD-85_021214_01 SUS RD-54A_021214_01 DIS RD-85_021214_01 DIS	J (all detects) UJ (all non-detects)	P

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02066-OR/ 14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02066-OR/ 14-02067-OR	FB_021214_19 SUS RD-33A_021214_01 SUS RD-50_021214_01 SUS FB_021214_19 DIS RD-33A_021214_01 DIS RD-50_021214_01 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (normalized difference) (E)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-54A_021214_01 SUS RD-85_021214_01 SUS RD-54A_021214_01 DIS RD-85_021214_01 DIS	Gross Beta	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-54A_021214_01 SUS RD-85_021214_01 SUS FB_021214_19 SUS RD-33A_021214_01 SUS RD-50_021214_01 SUS RD-54A_021214_01 DIS RD-85_021214_01 DIS FB_021214_19 DIS RD-33A_021214_01 DIS RD-50_021214_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-12-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	SW	DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	ND	FB = <u>3, 8</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

EB = EB-RD-07-020714 SUS }  
 EB = EB-RD-07-020714 DIS } SDG: 280-51959-1/  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank  
14-02118-OR

Validated Samples:  
all water

1 <sup>1</sup>	RD-54A_021214_01 SUS	11 <sup>1</sup>	RD-54A_021214_01 DISDUP	21		31	
2 <sup>1</sup>	RD-85_021214_01 SUS	12 <sup>2</sup>	RD-33A_021214_01 DISDUP	22		32	
3 <sup>2</sup>	FB_021214_19 SUS	13		23		33	
4 <sup>2</sup>	RD-33A_021214_01 SUS	14		24		34	
5 <sup>2</sup>	RD-50_021214_01 SUS	15		25		35	
6 <sup>1</sup>	RD-54A_021214_01 DIS	16		26		36	
7 <sup>1</sup>	RD-85_021214_01 DIS	17		27		37	
8 <sup>2</sup>	FB_021214_19 DIS	18		28		38	
9 <sup>2</sup>	RD-33A_021214_01 DIS	19		29		39 <sup>1</sup>	PBW1
10 <sup>2</sup>	RD-50_021214_01 DIS	20		30		40 <sup>2</sup>	PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 3, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02069-OR

**Sample Identification**

RD-54A\_021214\_01  
RD-87\_021214\_01  
RD-90\_021214\_01  
RD-94\_021214\_01  
RD-85\_021214\_01  
FB\_021214\_19  
RD-33A\_021214\_01  
RD-50\_021214\_01  
RD-57\_021214\_01  
RD-64\_021214\_01  
RD-54A\_021214\_01DUP

## Introduction

This data review covers 11 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Sample FB\_021214\_19 was identified as a field blank. No tritium was found with the following exceptions:

Blank ID	Sampling Date	Isotope	Activity	Associated Samples
FB_021214_19	2/12/14	Tritium	540 pCi/L	RD-54A_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01

Sample activities were compared to activities detected in the field blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated field blanks with the following exceptions:

Sample	Isotope	Reported Activity	Modified Final Activity
RD-54A_021214_01	Tritium	360 pCi/L	360U pCi/L

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Although matrix spike (MS) and matrix spike duplicate (MSD) samples were not required by the method, MS and MSD samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02069-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Data Qualification Summary - SDG 280-52126-1/14-02069-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02069-OR	RD-54A_021214_01 RD-87_021214_01 RD-90_021214_01 RD-94_021214_01 RD-85_021214_01 FB_021214_19 RD-33A_021214_01 RD-50_021214_01 RD-57_021214_01 RD-64_021214_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02069-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02069-OR**

SDG	Sample	Isotope	Modified Final Concentration	A or P	Code
280-52126-1/ 14-02069-OR	RD-54A_021214_01	Tritium	360U pCi/L	A	F

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	SW	FB = 6

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples:  
 all water

1	RD-54A_021214_01	11	RD-54A_021214_01DUP	21		31	
2	RD-87_021214_01	12		22		32	
3	RD-90_021214_01	13		23		33	
4	RD-94_021214_01	14		24		34	
5	RD-85_021214_01	15		25		35	
6	FB_021214_19	16		26		36	
7	RD-33A_021214_01	17		27		37	
8	RD-50_021214_01	18		28		38	
9	RD-57_021214_01	19		29		39	
10	RD-64_021214_01	20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Radiochemistry (Method: 906.0)

N N/A Were field blanks identified in this SDG?

N N/A Were target isotopes detected in the field blanks?

**Blank units:** pCi/L **Associated sample units:** pCi/L

**Sampling date:** 2/12/14 **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 1-4 Qual: U (F)

Analyte	Blank ID	Sample Identification											
	6	Action Level	1										
Tritium	540	2700	360										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02066-OR/14-02067-OR

### Sample Identification

RD-54A\_021214\_01 SUS    RD-57\_021214\_01 DIS  
RD-90\_021214\_01 SUS    RD-64\_021214\_01 DIS  
EB\_RD-90\_021214 SUS    RD-54A\_021214\_01 ISDUP  
RD-94\_021214\_01 SUS    RD-22\_021214\_01 DISDUP  
RD-85\_021214\_01 SUS  
FB\_021214\_19 SUS  
RD-22\_021214\_01 SUS  
RD-33A\_021214\_01 SUS  
RD-50\_021214\_01 SUS  
RD-57\_021214\_01 SUS  
RD-64\_021214\_01 SUS  
RD-54A\_021214\_01 DIS  
RD-90\_021214\_01 DIS  
EB\_RD-90\_021214 DIS  
RD-94\_021214\_01 DIS  
RD-85\_021214\_01 DIS  
FB\_021214\_19 DIS  
RD-22\_021214\_01 DIS  
RD-33A\_021214\_01 DIS  
RD-50\_021214\_01 DIS

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 24 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS, EB\_RD-07\_020714 DIS (both from SDG 280-51959-1/14-02037-OR), EB\_PZ-109\_021314 SUS, EB\_PZ-109\_021314 DIS (both from SDG 280-52128-1/14-02062-OR), EB\_RD-90\_021214 SUS, and EB\_RD-90\_021214 DIS were identified as equipment blanks. No gamma emitting radionuclides were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No gamma emitting radionuclides were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-85_021214_01 DIS	Europium-154	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-85_021214_01 DIS	Europium-154	Non-detect result is greater than the MDA.	R	A
RD-33A_021214_01 SUS RD-50_021214_01 SUS	Europium-152	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-33A_021214_01 SUS RD-50_021214_01 SUS	Europium-152	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02066-OR/ 14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-57\_021214\_01 SUS and RD-57\_021214\_03 SUS (from SDG 14B067A/343033) and samples RD-57\_021214\_01 DIS and RD-57\_021214\_03 DIS (from SDG 14B067A/343033) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-85_021214_01 DIS	Europium-154	R	A	Sample result verification (*VIII)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-33A_021214_01 SUS RD-50_021214_01 SUS	Europium-152	R	A	Sample result verification (*VIII)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-54A_021214_01 SUS RD-90_021214_01 SUS EB_RD-90_021214 SUS RD-94_021214_01 SUS RD-85_021214_01 SUS FB_021214_19 SUS RD-22_021214_01 SUS RD-33A_021214_01 SUS RD-50_021214_01 SUS RD-57_021214_01 SUS RD-64_021214_01 SUS RD-54A_021214_01 DIS RD-90_021214_01 DIS EB_RD-90_021214 DIS RD-94_021214_01 DIS RD-85_021214_01 DIS FB_021214_19 DIS RD-22_021214_01 DIS RD-33A_021214_01 DIS RD-50_021214_01 DIS RD-57_021214_01 DIS RD-64_021214_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	gmj SW <sub>N</sub>	SDG: 14B067A / 343033 ←
IX.	Overall assessment of data	SW A	split = 10 + RD-57-021214-03SUS }
X.	Field duplicates	ND	split = 71 + RD-57-021214-03DIS }
XI.	Field blanks	ND	EB = 3, 14    FB = 6, 17

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SDG: 280-51959-1 / 14-02037-OR

Validated Samples:  
 all water

EB = EB-RD-07-020714 SUS }  
 EB = EB-PZ-109-021314 SUS } SDG: 280-52128-1/14-02067-OR  
 EB = EB-PZ-109-021314 DIS }

1	RD-54A_021214_01 SUS	11	RD-64_021214_01 SUS	21	RD-57_021214_01 DIS	31	
2	RD-90_021214_01 SUS	12	RD-54A_021214_01 DIS	22	RD-64_021214_01 DIS	32	
3	EB_RD-90_021214 SUS	13	RD-90_021214_01 DIS	23	RD-54A_021214_01 DISDUP	33	
4	RD-94_021214_01 SUS	14	EB_RD-90_021214 DIS	24	RD-22_021214_01 DISDUP	34	
5	RD-85_021214_01 SUS	15	RD-94_021214_01 DIS	25		35	
6	FB_021214_19 SUS	16	RD-85_021214_01 DIS	26		36	
7	RD-22_021214_01 SUS	17	FB_021214_19 DIS	27		37	
8	RD-33A_021214_01 SUS	18	RD-22_021214_01 DIS	28		38	
9	RD-50_021214_01 SUS	19	RD-33A_021214_01 DIS	29		39	PBW1
10	RD-57_021214_01 SUS	20	RD-50_021214_01 DIS	30		40	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Americium & Curium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02066-OR/14-02067-OR

**Sample Identification**

RD-97\_021214\_01 SUS  
FB\_021214\_19 SUS  
RD-97\_021214\_01 DIS  
FB\_021214\_19 DIS  
RD-97\_021214\_01 DISDUP  
FB\_021214\_19 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 6 water samples listed on the cover sheet. The analyses were per Method EiChrom AM-01 for Americium and Curium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No contaminants were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Chemical Recovery**

Chemical recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
PBW1	Curium -245/246	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02066-OR/ 14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Americium & Curium - Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-97_021214_01 SUS FB_021214_19 SUS RD-97_021214_01 DIS FB_021214_19 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Americium & Curium - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Americium & Curium - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

Americium and Curium

METHOD: Alpha Spectroscopy (Method EiChrom Am-01)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
IIa.	Initial calibration	N	
IIb.	Calibration verification	N	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
IVa.	Laboratory control samples	A	LCS
V.	Sample specific chemical recovery	A	
VI.	Radionuclide Quantitation & Implied Detection Limits MDA	A	
VII.	Sample result verification	SW	
VIII.	Overall assessment of data	ASW	
IX.	Field duplicates	N	
X.	Field blanks	ND	FB = 2, 4

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:  
 all water

1	RD-97_021214_01 SUS	11		21		31	
2	FB_021214_19 SUS	12		22		32	
3	RD-97_021214_01 DIS	13		23		33	
4	FB_021214_19 DIS	14		24		34	
5	RD-97_021214_01 DISDUP	15		25		35	
6	FB_021214_19 DISDUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	PBW1
10		20		30		40	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 3, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02066-OR/14-02067-OR

### Sample Identification

RD-54A\_021214\_01 SUS  
RD-85\_021214\_01 SUS  
FB\_021214\_19 SUS  
RD-33A\_021214\_01 SUS  
RD-50\_021214\_01 SUS  
RD-54A\_021214\_01 DIS  
RD-85\_021214\_01 DIS  
FB\_021214\_19 DIS  
RD-33A\_021214\_01 DIS  
RD-50\_021214\_01 DIS  
RD-54A\_021214\_01 DISDUP  
RD-33A\_021214\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 12 water samples listed on the cover sheet. The analyses were per EPA Method 908.0 for Isotopic Uranium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS (both from SDG 280-51959-1/14-02118-OR) were identified as equipment blanks. No contaminants were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No contaminants were found with the following exceptions:

Blank ID	Sampling Date	Isotope	Activity	Associated Samples
FB_021214_19DIS	2/12/14	Uranium-233/234	0.15 pCi/L	RD-54A_021214_01 DIS

Sample activities were compared to activities detected in the field blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.



## VII. Tracer Recovery

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW1	Uranium-232	118.07 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-54A_021214_01 DIS	Uranium-232	112.44 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
PBW2	Uranium-232	138.45 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-33A_021214_01 DIS	Uranium-232	123.96 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-33A_021214_01 SUS	Uranium-232	123.93 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-50_021214_01 DIS	Uranium-232	135.28 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
FB_021214_19 SUS	Uranium-232	125.50 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

## VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02066-OR/ 14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-54A_021214_01 DIS RD-33A_021214_01 DIS RD-33A_021214_01 SUS RD-50_021214_01 DIS FB_021214_19 SUS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-54A_021214_01 SUS RD-85_021214_01 SUS FB_021214_19 SUS RD-33A_021214_01 SUS RD-50_021214_01 SUS RD-54A_021214_01 DIS RD-85_021214_01 DIS FB_021214_19 DIS RD-33A_021214_01 DIS RD-50_021214_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	SW	FB = 3*8

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

\* = ND = No compounds detected  
R = Rinsate  
FB = Field blank

EB = EB\_RD-07\_020714SUS\*  
D = Duplicate  
TB = Trip blank  
EB = Equipment blank  
EB = EB\_RD-07\_020714DIS\*

SDG:  
280-51959-1/  
14-02118

Validated Samples:

all water

1	RD-54A_021214_01 SUS	11	RD-54A_021214_01 DISDUP	21		31	
2	RD-85_021214_01 SUS	12	RD-33A_021214_01 DISDUP	22		32	
3	FB_021214_19 SUS	13		23		33	
4	RD-33A_021214_01 SUS	14		24		34	
5	RD-50_021214_01 SUS	15		25		35	
6	RD-54A_021214_01 DIS	16		26		36	
7	RD-85_021214_01 DIS	17		27		37	
8	FB_021214_19 DIS	18		28		38	
9	RD-33A_021214_01 DIS	19		29		39	PBW1
10	RD-50_021214_01 DIS	20		30		40	PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved

## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Radiochemistry (Method: 908.0)

N N/A Were field blanks identified in this SDG?

N N/A Were target isotopes detected in the field blanks?

**Blank units:** pCi/L **Associated sample units:** pCi/L

**Sampling date:** 2/12/14 **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ **Associated Samples:** 6 (>5x)

Analyte	Blank ID	Sample Identification											
	8	Action Level	No Qual.										
U-233/234	0.15	0.75											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02066-OR/14-02067-OR

### Sample Identification

RD-54A\_021214\_01 SUS  
RD-54B\_021214\_01 SUS  
RD-90\_021214\_01 SUS  
RD-85\_021214\_01 SUS  
FB\_021214\_19 SUS  
RD-33A\_021214\_01 SUS  
RD-50\_021214\_01 SUS  
RD-57\_021214\_01 SUS  
RD-54A\_021214\_01 DIS  
RD-54B\_021214\_01 DIS  
RD-90\_021214\_01 DIS  
RD-85\_021214\_01 DIS  
FB\_021214\_19 DIS  
RD-33A\_021214\_01 DIS  
RD-50\_021214\_01 DIS  
RD-57\_021214\_01 DIS  
RD-54A\_021214\_01 DISDUP  
FB\_021214\_19 DISDUP

Samples ending in "SUS" were reported for particulate only  
Samples ending in "DIS" were reported for dissolved only

## Introduction

This data review covers 18 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_PZ-109\_021314 SUS and EB\_PZ-109\_021314 DIS (from SDG 280-52128-1/14-02117-OR) were identified as equipment blanks. No strontium-90 was found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No strontium-90 was found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-11/14-02066-OR/ 14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Strontium-90 - Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02066-OR/ 14-02067-OR	RD-54A_021214_01 SUS RD-54B_021214_01 SUS RD-90_021214_01 SUS RD-85_021214_01 SUS FB_021214_19 SUS RD-33A_021214_01 SUS RD-50_021214_01 SUS RD-57_021214_01 SUS RD-54A_021214_01 DIS RD-54B_021214_01 DIS RD-90_021214_01 DIS RD-85_021214_01 DIS FB_021214_19 DIS RD-33A_021214_01 DIS RD-50_021214_01 DIS RD-57_021214_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Strontium-90 - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR/14-02067-OR**

No Sample Data Qualified in this SDG

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	ND	FB = 5, 13

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB = EB\_PZ-109\_021314 SUS } SDG:  
 EB = EB\_PZ-109\_021314 DIS } 280-52128-1/  
 14-02117-OR

Validated Samples:  
 all water

1	RD-54A_021214_01 SUS	11	RD-90_021214_01 DIS	21		31	
2	RD-54B_021214_01 SUS	12	RD-85_021214_01 DIS	22		32	
3	RD-90_021214_01 SUS	13	FB_021214_19 DIS	23		33	
4	RD-85_021214_01 SUS	14	RD-33A_021214_01 DIS	24		34	
5	FB_021214_19 SUS	15	RD-50_021214_01 DIS	25		35	
6	RD-33A_021214_01 SUS	16	RD-57_021214_01 DIS	26		36	
7	RD-50_021214_01 SUS	17	RD-54A_021214_01 DISDUP	27		37	
8	RD-57_021214_01 SUS	18	RD-33A_021214_01 DISDUP	28		38	
9	RD-54A_021214_01 DIS	19	#13 DUP	29		39	PBW1
10	RD-54B_021214_01 DIS	20		30		40	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Plutonium & Neptunium-236  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02067-OR

**Sample Identification**

FB\_021214\_19 SUS  
FB\_021214\_19 DIS  
FB\_021214\_19 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Isotopic Plutonium and Neptunium-236.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

**I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

**II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

**III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

**IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No contaminants were found.

**V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

**VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Plutonium-239/240	76 (80-120)	All samples in SDG 280-52126-1/14-02067-OR	J (all detects) UJ (all non-detects)	P

**VII. Tracer Recovery**

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW	Plutonium-242	18.36 (30-110)	Neptunium-236 Plutonium-238 Plutonium-239/240	J (all detects) UJ (all non-detects)	A
FB_021214_19 DIS	Plutonium-242	27.06 (30-110)	Neptunium-236 Plutonium-238 Plutonium-239/240	J (all detects) UJ (all non-detects)	A

### VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
FB_021214_19 DISDUP	Plutonium-242	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium & Neptunium-236 - Data Qualification Summary - SDG 280-52126-1/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02067-OR	FB_021214_19 SUS FB_021214_19 DIS	Plutonium-239/240	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52126-1/ 14-02067-OR	FB_021214_19 DIS	Neptunium-236 Plutonium-238 Plutonium-239/240	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-52126-1/ 14-02067-OR	FB_021214_19 SUS FB_021214_19 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium & Neptunium-236 - Laboratory Blank Data Qualification  
Summary - SDG 280-52126-1/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium & Neptunium-236 - Field Blank Data Qualification Summary -  
SDG 280-52126-1/14-02067-OR**

No Sample Data Qualified in this SDG

LDC #: 31547E67b **VALIDATION COMPLETENESS WORKSHEET**

Date: 3-31-14

SDG #: 280-52126-1/14-02066-OR/14-02067-OR Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG

2nd Reviewer: *[Signature]*

*and Neptunium - 236*

**METHOD:** Isotopic Plutonium (DOE EML HASL-300)

*MB*

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	<i>MB</i> SW	
IX.	Overall assessment of data	↓ ASW	
X.	Field duplicates	N	
XI.	Field blanks	ND	FB = 3, 6
XII.	Tracer	SW	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:  
*all water*

1	RD-54A_021214_01 SUS	11		21		31	
2	RD-54B_021214_01 SUS	12		22		32	
3	FB_021214_19 SUS	13		23		33	
4	RD-54A_021214_01 DIS	14		24		34	
5	RD-54B_021214_01 DIS	15		25		35	
6	FB_021214_19 DIS	16		26		36	
7	RD-54A_021214_01 DISDUP	17		27		37	
8	FB_021214_19 DISDUP	18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Iodine-129  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02067-OR

**Sample Identification**

FB\_021214\_19 SUS  
FB\_021214\_19 DIS  
FB\_021214\_19 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 902.0 for Iodine-129.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No contaminants were found.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:



Sample	Isotope	Finding	Flag	A or P
FB_021214_19 SUS FB_021214_19 DIS	Iodine-129	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
FB_021214_19 SUS FB_021214_19 DIS	Iodine-129	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Iodine-129 - Data Qualification Summary - SDG 280-52126-1/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02067-OR	FB_021214_19 SUS FB_021214_19 DIS	Iodine-129	R	A	Sample result verification (*IX)
280-52126-1/ 14-02067-OR	FB_021214_19 SUS FB_021214_19 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Iodine-129 - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Iodine-129 - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02067-OR**

No Sample Data Qualified in this SDG

**METHOD:** Iodine-129 (EPA Method 902.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	N	not required
VI.	Duplicate	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	9M SW#	
X.	Overall assessment of data	↓ ASW	
XI.	Field duplicates	N	
XII.	Field blanks	ND	FB = 1, 2

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:  
 water

1	FB_021214_19 SUS	11		21		31	
2	FB_021214_19 DIS	12		22		32	
3	FB_021214_19 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Carbon-14  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02067-OR

**Sample Identification**

FB\_021214\_19 SUS  
FB\_021214\_19 DIS  
FB\_021214\_19 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per Method AP-026 for Carbon-14.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

### **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

### **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

### **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

### **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS were identified as field blanks. No contaminants were found with the following exceptions:

<b>Blank ID</b>	<b>Sampling Date</b>	<b>Isotope</b>	<b>Activity</b>	<b>Associated Samples</b>
FB_021214_19 SUS	2/12/14	Carbon-14	7.0 pCi/L	No associated samples in this SDG

### **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

### **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

### **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02067-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Data Qualification Summary - SDG 280-52126-1/14-02067-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02067-OR	FB_021214_19 SUS FB_021214_19 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02067-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02067-OR**

No Sample Data Qualified in this SDG

LDC #: 31547E77 **VALIDATION COMPLETENESS WORKSHEET**

Date: 3-31-14

SDG #: 280-52126-1/14-02066-OR-14-02067-OR Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG

2nd Reviewer: [Signature]

9mJ

**METHOD:** Carbon-14 (Method AP-026)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	N	not required
VI.	Duplicate	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	SW	FB = 1, 2*

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

\* = ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
water

1	FB_021214_19 SUS	11		21		31	
2	FB_021214_19 DIS	12		22		32	
3	FB_021214_19 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved

## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Radiochemistry (Method: AP-026)

- N N/A Were field blanks identified in this SDG?  
 N N/A Were target isotopes detected in the field blanks?

**Blank units:** pCi/L **Associated sample units:** pCi/L

**Sampling date:** 2/12/14 **Soil factor applied:** NA

**Field blank type:** (circle one) Field Blank Rinsate / Other: \_\_\_\_\_ Associated Samples: none

Analyte	Blank ID	Sample Identification											
	1	Action Level											
C-14	7.0	35.0											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Neptunium-236  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02066-OR

### Sample Identification

RD-54A\_021214\_01 SUS  
RD-54B\_021214\_01 SUS  
RD-54A\_021214\_01 DIS  
RD-54B\_021214\_01 DIS  
RD-54A\_021214\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Neptunium-236.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-93\_021114 SUS and EB\_RD-93\_021114 DIS (both from SDG 280-52030-1/14-02068-OR) were identified as field blanks. No contaminants were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No contaminants were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

All tracer recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02066-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-54B\_021214\_01 SUS and RD-54B\_021214\_03 SUS (from SDG 14B067A/343033) and samples RD-54B\_021214\_01 DIS and RD-54B\_021214\_03 DIS (from SDG 14B067A/343033) were identified as split samples. No contaminants were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Neptunium-236 - Data Qualification Summary - SDG 280-52126-1/14-02066-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02066-OR	RD-54A_021214_01 SUS RD-54B_021214_01 SUS RD-54A_021214_01 DIS RD-54B_021214_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Neptunium-236 - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Neptunium-236 - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02066-OR**

No Sample Data Qualified in this SDG



Neptunium - 236

METHOD: Isotopic Plutonium (DOE EML HASL-300)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	SDG: 14B067A / 343033 ←
IX.	Overall assessment of data	A	split = 2 + RD-54B_021214_03SUS }
X.	Field duplicates	ND	split = 5 + RD-54B_021214_03DIS }
XI.	Field blanks	ND	EB = EB-RD-93_021114SUS }
XII.	Tracer	A	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SDG: 280-52030-1 / 14-02068-OR  
 SDG: 280-52126-1 / 14-02067-OR

Validated Samples:

all water

EB = EB-RD-93\_021114DIS  
 FB = FB\_021214\_19 SUS  
 FB = FB\_021214\_19 DIS

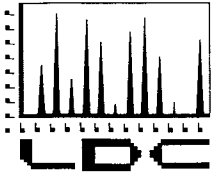
MA

MA

MA

1	RD-54A_021214_01 SUS	11		21		31	
2	RD-54B_021214_01 SUS	12		22		32	
3	<del>FB_021214_19 SUS</del>	13		23		33	
4	RD-54A_021214_01 DIS	14		24		34	
5	RD-54B_021214_01 DIS	15		25		35	
6	<del>FB_021214_19 DIS</del>	16		26		36	
7	RD-54A_021214_01 DISDUP	17		27		37	
8	<del>FB_021214_19 DISDUP</del>	18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### **LDC Project #31547:**

#### **SDG #**

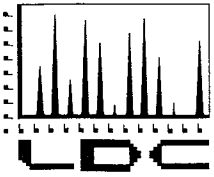
280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

#### **Fraction**

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pei Geng', with a long, sweeping flourish extending from the end of the name.

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52128-1/14-02062-OR/14-02063-OR

**Sample Identification**

RD-19\_021314\_01 SUS  
RD-63\_021314\_01 SUS  
RD-96\_021314\_01 SUS  
RD-57\_021314\_01 SUS  
RD-19\_021314\_01 DIS  
RD-63\_021314\_01 DIS  
RD-96\_021314\_01 DIS  
RD-57\_021314\_01 DIS  
RD-19\_021314\_01 DISDUP  
RD-96\_021314\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 10 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52128-1/14-02062-OR/ 14-02063-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A



Raw data were not reviewed for this SDG.

#### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

SDG	Sample	Isotope	Flag	A or P	Reason
280-52128-1/ 14-02062-OR/ 14-02063-OR	RD-19_021314_01 SUS RD-63_021314_01 SUS RD-96_021314_01 SUS RD-57_021314_01 SUS RD-19_021314_01 DIS RD-63_021314_01 DIS RD-96_021314_01 DIS RD-57_021314_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

No Sample Data Qualified in this SDG

LDC #: 31547F22 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52128-1/14-02062-OR/14-02063-OR Level V

Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 3-31-14

Page: 1 of 1

Reviewer: MG  
2nd Reviewer: *[Signature]*

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-13-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
*all water*

1 <sup>1</sup>	RD-19_021314_01 SUS	11		21		31	
2 <sup>1</sup>	RD-63_021314_01 SUS	12		22		32	
3 <sup>2</sup>	RD-96_021314_01 SUS	13		23		33	
4 <sup>2</sup>	RD-57_021314_01 SUS	14		24		34	
5 <sup>1</sup>	RD-19_021314_01 DIS	15		25		35	
6 <sup>1</sup>	RD-63_021314_01 DIS	16		26		36	
7 <sup>2</sup>	RD-96_021314_01 DIS	17		27		37	
8 <sup>2</sup>	RD-57_021314_01 DIS	18		28		38	
9 <sup>1</sup>	RD-19_021314_01 DISDUP	19		29 <sup>1</sup>	PBW1	39	
10 <sup>2</sup>	RD-96_021314_01 DISDUP	20		30 <sup>2</sup>	PBW2	40	

Notes: "SUS" is particulate  
"DIS" is dissolved

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52128-1/14-02064-OR

**Sample Identification**

RD-19\_021314\_01  
RD-91\_021314\_01  
RD-63\_021314\_01  
RD-24\_021314\_01  
RD-96\_021314\_01  
RD-19\_021314\_01DUP

## Introduction

This data review covers 6 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52128-1/14-02064-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-52128-1/14-02064-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52128-1/ 14-02064-OR	RD-19_021314_01 RD-91_021314_01 RD-63_021314_01 RD-24_021314_01 RD-96_021314_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-52128-1/14-02064-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-52128-1/14-02064-OR**

No Sample Data Qualified in this SDG



LDC #: 31547F34 **VALIDATION COMPLETENESS WORKSHEET**

Date: 3-31-14

SDG #: 280-52128-1/14-02064-OR Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG  
2nd Reviewer: T

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-13-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
all water

1	RD-19_021314_01	11		21		31	
2	RD-91_021314_01	12		22		32	
3	RD-63_021314_01	13		23		33	
4	RD-24_021314_01	14		24		34	
5	RD-96_021314_01	15		25		35	
6	RD-19_021314_01DUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52128-1/14-02062-OR/14-02063-OR

### Sample Identification

RD-19\_021314\_01 SUS  
RD-91\_021314\_01 SUS  
RD-63\_021314\_01 SUS  
EB\_PZ-109\_021314 SUS  
PZ-109\_021314\_01A SUS  
RD-24\_021314\_01 SUS  
PZ-108\_021314\_01 SUS  
PZ-122\_021314\_01 SUS  
RD-96\_021314\_01 SUS  
RD-19\_021314\_01 DIS  
RD-91\_021314\_01 DIS  
RD-63\_021314\_01 DIS  
EB\_PZ-109\_021314 DIS  
PZ-109\_021314\_01A DIS  
RD-24\_021314\_01 DIS  
PZ-108\_021314\_01 DIS  
PZ-122\_021314\_01 DIS  
RD-96\_021314\_01 DIS  
RD-19\_021314\_01 DISDUP  
PZ-108\_021314\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 20 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_RD-07\_020714 SUS, EB\_RD-07\_020714 DIS (both from SDG 280-51959-1/14-02037-OR), EB\_PZ-109\_021314 SUS, and EB\_PZ-109\_021314 DIS were identified as equipment blanks. No gamma emitting radionuclides were found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (both from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gamma emitting radionuclides were found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
PBW2	Europium-154	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
PBW2	Europium-154	Non-detect result is greater than the MDA.	R	A
RD-63_021314_01 DIS PBW2	Europium-152	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-63_021314_01 DIS PBW2	Europium-152	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52128-1/14-02062-OR/ 14-02063-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-24\_021314\_01 SUS and RD-24\_021314\_03 SUS (from SDG 14B082/343032) and samples RD-24\_021314\_01 DIS and RD-24\_021314\_03 DIS (from SDG 14B082/343032) were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52128-1/ 14-02062-OR/ 14-02063-OR	RD-63_021314_01 DIS	Europium-152	R	A	Sample result verification (*VIII)
280-52128-1/ 14-02062-OR/ 14-02063-OR	RD-19_021314_01 SUS RD-91_021314_01 SUS RD-63_021314_01 SUS EB_PZ-109_021314 SUS PZ-109_021314_01A SUS RD-24_021314_01 SUS PZ-108_021314_01 SUS PZ-122_021314_01 SUS RD-96_021314_01 SUS RD-19_021314_01 DIS RD-91_021314_01 DIS RD-63_021314_01 DIS EB_PZ-109_021314 DIS PZ-109_021314_01A DIS RD-24_021314_01 DIS PZ-108_021314_01 DIS PZ-122_021314_01 DIS RD-96_021314_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

No Sample Data Qualified in this SDG

LDC #: 31547F35 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52128-1/14-02062-OR/14-02063-OR Level V

Laboratory : Test America, Inc./Eberline Analytical Corporation

Date: 3-31-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: T

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area		Comments	
I.	Technical holding times	A	Sampling dates: 2-13-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	9mL SW <sub>N</sub>	SDG: 14B082 / 343032 ←
IX.	Overall assessment of data	↓ SWA	split = 6 + RD-24-021314-03SUS } ←
X.	Field duplicates	ND	split = 15 + RD-24-021314-03DIS } ←
XI.	Field blanks	ND	EB = 4, 13

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SDG: 280-51959-1  
14-02037-OR

Validated Samples:  
all water

EB = EB-RD-07-020714SUS }  
EB = EB-RD-07-020714DIS }  
FB = FB-021214-19SUS } SDG: 280-52126-1/14-02067-0  
FB = FB-021214-19DIS }

1	RD-19_021314_01 SUS	11	RD-91_021314_01 DIS	21		31	
2	RD-91_021314_01 SUS	12	RD-63_021314_01 DIS	22		32	
3	RD-63_021314_01 SUS	13	EB_PZ-109_021314 DIS	23		33	
4	EB_PZ-109_021314 SUS	14	PZ-109_021314_01A DIS	24		34	
5	PZ-109_021314_01A SUS	15	RD-24_021314_01 DIS	25		35	
6	RD-24_021314_01 SUS	16	PZ-108_021314_01 DIS	26		36	
7	PZ-108_021314_01 SUS	17	PZ-122_021314_01 DIS	27		37	
8	PZ-122_021314_01 SUS	18	RD-96_021314_01 DIS	28		38	
9	RD-96_021314_01 SUS	19	RD-19_021314_01 DISDUP	29		39	PBW1
10	RD-19_021314_01 DIS	20	PZ-108_021314_01 DISDUP	30		40	PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved  
no more EB's





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Americium & Curium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52128-1/14-02062-OR

### Sample Identification

RD-19\_021314\_01 SUS  
RD-19\_021314\_01 DIS  
RD-19\_021314\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per Method EiChrom AM-01 for Americium and Curium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Chemical Recovery

All chemical recoveries were within validation criteria with the following exceptions:

Sample ID	Isotope	%R (Limits)	Affected Isotope	Flag	A or P
RD-19_021314_01 DIS	Americium-243	117.64 (30-110)	Americium-241 Curium-243/244	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

### VIII. Minimum Detectable Activity

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52128-1/14-02062-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Americium & Curium - Data Qualification Summary - SDG 280-52128-1/14-02062-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52128-1/ 14-02062-OR	RD-19_021314_01 DIS	Americium-241 Curium-243/244	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Chemical recovery (%R) (*VII)
280-52128-1/ 14-02062-OR	RD-19_021314_01 SUS RD-19_021314_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Americium & Curium - Laboratory Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Americium & Curium - Field Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR**

No Sample Data Qualified in this SDG

*Americium and Curium*

**METHOD:** Alpha Spectroscopy (Method EiChrom Am-01)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-13-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Sample specific chemical recovery	SW	
VIII.	Radionuclide Quantitation & Implied Detection Limits MDA	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
*all water*

1	RD-19_021314_01 SUS	11		21		31	
2	RD-19_021314_01 DIS	12		22		32	
3	RD-19_021314_01 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52128-1/14-02062-OR/14-02063-OR

### Sample Identification

RD-19\_021314\_01 SUS  
RD-63\_021314\_01 SUS  
RD-96\_021314\_01 SUS  
RD-57\_021314\_01 SUS  
RD-19\_021314\_01 DIS  
RD-63\_021314\_01 DIS  
RD-96\_021314\_01 DIS  
RD-57\_021314\_01 DIS  
RD-19\_021314\_01 DISDUP  
RD-96\_021314\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 10 water samples listed on the cover sheet. The analyses were per EPA Method 908.0 for Isotopic Uranium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Uranium-235 Uranium-238	0.12 pCi/L 0.081 pCi/L	RD-19_021314_01 SUS RD-63_021314_01 SUS RD-19_021314_01 DIS RD-63_021314_01 DIS

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks with the following exceptions:

Sample	Isotope	Reported Activity	Modified Final Activity
RD-63_021314_01 DIS	Uranium-235	0.20 pCi/L	0.20U pCi/L

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW1	Uranium-232	111.18 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-19_021314_01 DIS	Uranium-232	113.04 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-63_021314_01 DIS	Uranium-232	113.20 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
PBW2	Uranium-232	134.29 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-96_021314_01 DIS	Uranium-232	133.10 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
RD-57_021314_01 DIS	Uranium-232	125.04 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

## VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52128-1/14-02062-OR/ 14-02063-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52128/1/ 14-02062-OR/ 14-0203-OR	RD-19_021314_01 DIS RD-63_021314_01 DIS RD-96_021314_01 DIS RD-57_021314_01 DIS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-52128/1/ 14-02062-OR/ 14-0203-OR	RD-19_021314_01 SUS RD-63_021314_01 SUS RD-96_021314_01 SUS RD-57_021314_01 SUS RD-19_021314_01 DIS RD-63_021314_01 DIS RD-96_021314_01 DIS RD-57_021314_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

SDG	Sample	Isotope	Modified Final Concentration	A or P	Code
280-52128/1/ 14-02062-OR/ 14-0203-OR	RD-63_021314_01 DIS	Uranium-235	0.20U pCi/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR/14-02063-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-13-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	1	RD-19_021314_01 SUS	11		21		31	
2	1	RD-63_021314_01 SUS	12		22		32	
3	2	RD-96_021314_01 SUS	13		23		33	
4	2	RD-57_021314_01 SUS	14		24		34	
5	1	RD-19_021314_01 DIS	15		25		35	
6	1	RD-63_021314_01 DIS	16		26		36	
7	2	RD-96_021314_01 DIS	17		27		37	
8	2	RD-57_021314_01 DIS	18		28		38	
9	1	RD-19_021314_01 DISDUP	19		29 <sup>1</sup>	PBW1	39	
10	2	RD-96_021314_01 DISDUP	20		30 <sup>2</sup>	PBW2	40	

Notes: "SUS" is particulate  
"DIS" is dissolved

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Radiochemistry, Method 908.0

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** 1,2,5,6

**Qual:** U (B)

Isotope	Blank ID	Blank Action Limit	Sample Identification											
			6											
	PB													
U-235	0.12	0.60	0.20											
U-238	0.081	0.40												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** April 2, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52128-1/14-02063-OR/14-02117-OR/14-02062-OR

### Sample Identification

RD-19\_021314\_01 SUS  
RD-63\_021314\_01 SUS  
EB\_PZ-109\_021314 SUS  
PZ-109\_021314\_01A SUS  
RD-24\_021314\_01 SUS  
PZ-122\_021314\_01 SUS  
RD-96\_021314\_01 SUS  
RD-19\_021314\_01 DIS  
RD-63\_021314\_01 DIS  
EB\_PZ-109\_021314 DIS  
PZ-109\_021314\_01A DIS  
RD-24\_021314\_01 DIS  
PZ-122\_021314\_01 DIS  
RD-96\_021314\_01 DIS  
EB\_PZ-109\_021314 DISDUP  
PZ-122\_021314\_01 DISDUP  
RD-19\_021314\_01 DISDUP

Samples ending in "SUS" were reported for particulate only  
Samples ending in "DIS" were reported for dissolved only

## Introduction

This data review covers 17 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

Samples EB\_PZ-109\_021314 SUS and EB\_PZ-109\_021314 DIS were identified as equipment blanks. No strontium-90 was found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No strontium-90 was found.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52128-1/14-02063-OR/ 14-02117-OR/14-02062-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 280-52128-1/14-02063-OR/14-02117-OR/14-02062-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52128-1/ 14-02063-OR/ 14-02117-OR/ 14-02062-OR	RD-19_021314_01 SUS RD-63_021314_01 SUS EB_PZ-109_021314 SUS PZ-109_021314_01A SUS RD-24_021314_01 SUS PZ-122_021314_01 SUS RD-96_021314_01 SUS RD-19_021314_01 DIS RD-63_021314_01 DIS EB_PZ-109_021314 DIS PZ-109_021314_01A DIS RD-24_021314_01 DIS PZ-122_021314_01 DIS RD-96_021314_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-52128-1/14-02063-OR/14-02117-OR/14-02062-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 280-52128-1/14-02063-OR/14-02117-OR/14-02062-OR**

No Sample Data Qualified in this SDG

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-13-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	ND	EB = 3, 10

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

FB = FB-021214-19 SUS } SDG:  
FB = FB-021214-19 DIS } 280-52126-1/  
14-02067-OR

Validated Samples:

all water

1	RD-19_021314_01 SUS	11	PZ-109_021314_01A DIS	21		31	
2	RD-63_021314_01 SUS	12	RD-24_021314_01 DIS	22		32	
3	EB_PZ-109_021314 SUS	13	PZ-122_021314_01 DIS	23		33	
4	PZ-109_021314_01A SUS	14	RD-96_021314_01 DIS	24		34	
5	RD-24_021314_01 SUS	15	EB_PZ-109_021314 DISDUP	25		35	
6	PZ-122_021314_01 SUS	16	PZ-122_021314_01 DISDUP	26		36	
7	RD-96_021314_01 SUS	17	#8 DUP	27		37	
8	RD-19_021314_01 DIS	18		28		38	PBW1
9	RD-63_021314_01 DIS	19		29		39	PBW2
10	EB_PZ-109_021314 DIS	20		30		40	PBW3

Notes: "SUS" is particulate  
"DIS" is dissolved

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 13, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Carbon-14  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52128-1/14-02062-OR

**Sample Identification**

RD-19\_021314\_01 SUS  
RD-19\_021314\_01 DIS  
RD-19\_021314\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per Method AP-026 for Carbon-14.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52128-1/14-02062-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

**X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Data Qualification Summary - SDG 280-52128-1/14-02062-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52128-1/ 14-02062-OR	RD-19_021314_01 SUS RD-19_021314_01 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Laboratory Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Field Blank Data Qualification Summary - SDG 280-52128-1/14-02062-OR**

No Sample Data Qualified in this SDG

LDC #: 31547F77 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52128-1/14-02062-OR Level V

Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 3-31-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer:           

**METHOD:** Carbon-14 (Method AP-026)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-13-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) <del>Duplicate</del>	N	not required
VI.	Duplicate	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

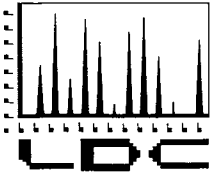
ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
all water

1	RD-19_021314_01 SUS	11		21		31	
2	RD-19_021314_01 DIS	12		22		32	
3	RD-19_021314_01 DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### **LDC Project #31547:**

#### **SDG #**

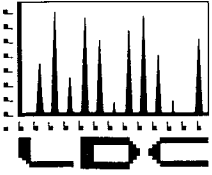
280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

#### **Fraction**

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004



- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-522501/14-02099-OR

**Sample Identification**

OS-10\_021814\_01  
OS-10\_021814\_36  
OS-10\_021814\_01DUP

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) analyses were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG280-522501/14-02099-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

Samples OS-10\_021814\_01 and OS-10\_021814\_36 were identified as field duplicates. No tritium was detected in any of the samples.

Samples OS-10\_021814\_03 (from SDG 1413107A/343195) and OS-10\_021814\_01 were identified as split samples. No tritium was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-522501/14-02099-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-522501/ 14-02099-OR	OS-10_021814_01 OS-10_021814_36	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-522501/14-02099-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-522501/14-02099-OR**

No Sample Data Qualified in this SDG

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/18/14
II.	Initial calibration	N	
III.	Calibration verification	A	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	N/A	DD LCS
VI.	Laboratory control samples	A	
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	ND	(1,2) split = (1, OS 10 - 021814 - 03 (50%)
XI.	Field blanks	N	

1473107  
34319

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

1	OS-10_021814_01	11		21		31	
2	OS-10_021814_36	12		22		32	
3	OS-10_021814_01DUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Radiochemistry(EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	/			
Were NIST traceable standards used for all calibrations?	/			
Was the check source identified by activity and radionuclide?	/			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	/			
<b>III. Blanks</b>				
Were blank analyses performed as required?	/			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		/		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			/	
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			/	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	/			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	/			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	/			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?			/	
Were tracer/carrier recoveries within the QC limits?			/	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?		/		
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	/			

LDC #: 31847634

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: ek  
2nd Reviewer: cl

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target analytes were detected in the field duplicates.		/		
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	



LDC #: 31547539

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: QR  
2nd Reviewer: Q

**METHOD:** Radiochemistry (Method: see cover)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where, Found = activity of each analyte measured in the analysis of the sample.  
True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$       Where, S = Original sample activity  
D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	H-3	7810	7180	109	109	Y
N	Matrix spike sample						
3	Duplicate RPD	H-3	ND	ND	-	-	Y
N	Chemical recovery						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52250-1/14-02098-OR

### Sample Identification

OS-10\_021814\_01 SUS  
OS-10\_021814\_36 SUS  
OS-10\_021814\_01 DIS  
OS-10\_021814\_36 DIS  
OS-10\_021814\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 908.0 for Isotopic Uranium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## III. Continuing Calibration

Continuing calibration and background determination was performed at the required frequencies.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

Tracer recoveries (%R) were within QC limits with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
OS-10_021814_01 DIS	Uranium-232	117.53 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) JJ (all non-detects)	P

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
OS-10_021814_01 DISDUP	Uranium-232	113.75 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	P
OS-10_021814_36 DIS	Uranium-232	120.55 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	P

### VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52250-1/14-02098-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples OS-10\_021814\_01 SUS and OS-10\_021814\_36 SUS and samples OS-10\_021814\_01 DIS and OS-10\_021814\_36 DIS were identified as field duplicates. No isotopic uranium was detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/g)		RPD (Limits)	Flag	A or P
	OS-10_021814_01 DIS	OS-10_021814_36 DIS			
Uranium-233/234	0.32	0.57	56 (≤35)	NQ	-
Uranium-238	0.19	0.095U	67 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

Samples OS-10\_021814\_03 DIS (from SDG 14B107/343195) and OS-10\_021814\_01 DIS and samples OS-10\_021814\_03 SUS (from SDG 14B107/343195) and OS-

10\_021814\_01 SUS were identified as split samples. No isotopic uranium was detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/g)		RPD (Limits)	Flag	A or P
	OS-10_021814_01 DIS	OS-10_021814_03 DIS			
Uranium-233/234	0.32	0.119U	47 ( $\leq 35$ )	NQ	-
Uranium-238	0.19	0.430U	77 ( $\leq 35$ )	NQ	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52250-1/ 14-02098-OR	OS-10_021814_01 DIS OS-10_021814_36 DIS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-52250-1/ 14-02098-OR	OS-10_021814_01 SUS OS-10_021814_36 SUS OS-10_021814_01 DIS OS-10_021814_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG



**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/18/14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	M/A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	(305-10-02814-0305) CS06: HB107/343195
XI.	Field duplicates	SW	(1,2) (3,4) split = (105-10-02814-0305)
XII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

water

1	OS-10_021814_01 SUS	11		21		31	
2	OS-10_021814_36 SUS	12		22		32	
3	OS-10_021814_01 DIS	13		23		33	
4	OS-10_021814_36 DIS	14		24		34	
5	OS-10_021814_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: SUS = particulate  
 DIS = dissolved

Method: Radiochemistry (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	/			
Were NIST traceable standards used for all calibrations?	/			
Was the check source identified by activity and radionuclide?	/			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	/			
<b>III. Blanks</b>				
Were blank analyses performed as required?	/			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		/		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.		/		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			/	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	/			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	/			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	/			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	/			
Were tracer/carrier recoveries within the QC limits?	/			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	/			

LDC #: 31547659

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: ek  
2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	/			
Target analytes were detected in the field duplicates.	/			
XI. Field blanks				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	



LDC# 31547G59

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

Radiochemistry, Method See Cover

Isotope	Activity (pCi/g)		RPD (≤35)	Qualifiers (Parents Only)
	3	4		
Uranium-233/234	0.32	0.57	56	NQ
Uranium-238	0.19	0.095U	67	NQ

NQ = no qualifier because one or both of the results are <5x RL

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LDC# 31547G59

**VALIDATION FINDINGS WORKSHEET**  
**Split Duplicates**

Page: 1 of 1  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

Radiochemistry, Method See Cover

Isotope	Activity (pCi/g)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	3	OS-10_021814_03DIS		
Uranium-233/234	0.32	0.199U	47	NQ
Uranium-238	0.19	0.430U	77	NQ

NQ = no qualifier because one or both of the results are  $<5x$  RL

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LDC #: 31547659

## VALIDATION FINDINGS WORKSHEET

### Level IV Recalculation Worksheet

 Page: 1 of 1  
 Reviewer: QR  
 2nd Reviewer: CL

 METHOD: Radiochemistry (Method: see cover)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	U-238	7.18	7.84	92	92	Y
	Matrix spike sample						
<del>U-235</del>	Duplicate RPD	U-238	ND	ND	NC	-	Y
3	Chemical recovery	U-232	22,259	18,939	117,53	117,53	Y

 Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52250-1/14-02098-OR

**Sample Identification**

OS-10\_021814\_01 SUS  
OS-10\_021814\_36 SUS  
OS-10\_021814\_01 DIS  
OS-10\_021814\_36 DIS  
OS-10\_021814\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 905.0 for Strontium-90

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

Carrier recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52250-1/14-02098-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XI. Field Duplicates**

Samples OS-10\_021814\_01 SUS and OS-10\_021814\_36 SUS and samples OS-10\_021814\_01 DIS and OS-10\_021814\_36 DIS were identified as field duplicates. No strontium-90 was detected in any of the samples.

Samples OS-10\_021814\_01 SUS and OS-10\_021814\_03 SUS (from SDG 14B107/343195) and samples OS-10\_021814\_01 DIS and OS-10\_021814\_03 DIS (from SDG 14B107/343195) were identified as split samples. No strontium-90 was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52250-1/ 14-02098-OR	OS-10_021814_01 SUS OS-10_021814_36 SUS OS-10_021814_01 DIS OS-10_021814_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG

LDC #: 31547G61 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52250-1/14-02098-OR Level IV

Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 3/27/14

Page: 1 of 1

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/18/14
II.	Initial calibration	NA	
III.	Calibration verification	NA	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	MA	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	NA	(500: 148107/313195)
X.	Overall assessment of data	A	(305-10-021814-0305)
XI.	Field duplicates	ND	(1,2) (3,4) split = (1,05-10-021814-03 SUS)
XII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *WAPL*

1	OS-10_021814_01 SUS	11		21		31	
2	OS-10_021814_36 SUS	12		22		32	
3	OS-10_021814_01 DIS	13		23		33	
4	OS-10_021814_36 DIS	14		24		34	
5	OS-10_021814_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: SUS = particulate      DIS = dissolved

Method: Radiochemistry (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	/			
Were NIST traceable standards used for all calibrations?	/			
Was the check source identified by activity and radionuclide?	/			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	/			
<b>III. Blanks</b>				
Were blank analyses performed as required?	/			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		/		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			/	
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			/	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	/			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	/			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	/			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	/			
Were tracer/carrier recoveries within the QC limits?	/			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	/			

LDC #: 31547661

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: ek  
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	/			
Target analytes were detected in the field duplicates.		/		
XI. Field blanks				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52250-1/14-02098-OR

**Sample Identification**

OS-10\_021814\_01 SUS  
OS-10\_021814\_36 SUS  
OS-10\_021814\_01 DIS  
OS-10\_021814\_36 DIS  
OS-10\_021814\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
OS-10_021814_01 DIS	Europium-152	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
OS-10_021814_01 SUS	Europium-154	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
OS-10_021814_01 SUS	Europium-154	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52250-1/14-02098-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples OS-10\_021814\_01 SUS and OS-10\_021814\_36 SUS and samples OS-10\_021814\_01 DIS and OS-10\_021814\_36 DIS were identified as field duplicates. No gamma emitting radionuclides were detected in any of the samples.

Samples OUS-10\_021814\_03 DIS (from SDG 14B107/31395) and OS-10\_021814\_01 DIS and samples OUS-10\_021814\_03 SUS (from SDG 14B107/31395) and OS-10\_021814\_01 SUS were identified as split samples. No gamma emitting radionuclides were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52250-1/ 14-02098-OR	OS-10_021814_01 DIS	Europium-152	R	A	Sample result verification (*VIII)
280-52250-1/ 14-02098-OR	OS-10_021814_01 SUS	Europium-154	R	A	Sample result verification (*VIII)
280-52250-1/ 14-02098-OR	OS-10_021814_01 SUS OS-10_021814_36 SUS OS-10_021814_01 DIS OS-10_021814_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/18/14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	MA	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	SW	
IX.	Overall assessment of data	A	SOB: 14B107/313 195 = (3,0US-10-021814-01 DIS)
X.	Field duplicates	ND	(1,2) (3,4) split = (1,0US-10-021814-035US)
XI.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: water

1	OS-10_021814_01 SUS	11		21		31	
2	OS-10_021814_36 SUS	12		22		32	
3	OS-10_021814_01 DIS	13		23		33	
4	OS-10_021814_36 DIS	14		24		34	
5	OS-10_021814_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: SUS = particulate  
 DIS = dissolved



Method: Radiochemistry (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	/			
Were NIST traceable standards used for all calibrations?	/			
Was the check source identified by activity and radionuclide?	/			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	/			
<b>III. Blanks</b>				
Were blank analyses performed as required?	/			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		/		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			/	
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			/	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	/			
Were all duplicate sample duplicate error ratios (DER) <1.42?		/		
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	/			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?			/	
Were tracer/carrier recoveries within the QC limits?			/	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?		/	/	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were the Minimum Detectable Activities (MDA) < RL?	/			

LDC #: 315417635

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: ek  
 2nd Reviewer: Q

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target analytes were detected in the field duplicates.		/		
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	



LDC #: 31847635

## VALIDATION FINDINGS WORKSHEET Level IV Recalculation Worksheet

Page: 1 of 1  
 Reviewer: QR  
 2nd Reviewer: Q

**METHOD:** Radiochemistry (Method: see cover)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Cs-137	131000	124000	105	105	Y
	Matrix spike sample						
S	Duplicate RPD	Co-60	ND	ND	NC	-	Y
	Chemical recovery						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 18, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52250-1/14-02098-OR

**Sample Identification**

OS-10\_021814\_01 SUS  
OS-10\_021814\_36 SUS  
OS-10\_021814\_01 DIS  
OS-10\_021814\_36 DIS  
OS-10\_021814\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 900.0 for Gross Alpha & Beta

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:



Sample	Isotope	Flag	A or P
All samples in SDG 280-52250-1/14-02098-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

Samples OS-10\_021814\_01 SUS and OS-10\_021814\_36 SUS and samples OS-10\_021814\_01 DIS and OS-10\_021814\_36 DIS were identified as field duplicates. No gross alpha or beta was detected in any of the samples.

Samples OS-10\_021814\_01 SUS and OS-10\_021814\_03 SUS (from SDG 141307/343195) and samples OS-10\_021814\_01 DIS and OS-10\_021814\_03 DIS (from SDG 141307/343195) were identified as split samples. No gross alpha or beta was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52250-1/ 14-02098-OR	OS-10_021814_01 SUS OS-10_021814_36 SUS OS-10_021814_01 DIS OS-10_021814_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-52250-1/14-02098-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/18/14
II.	Initial calibration	NA	
III.	Calibration verification	NA	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	N/A	Dup
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	NA	(SDG: 14R107/3B195)
IX.	Overall assessment of data	A	= (3,005-10-021814-03015)
X.	Field duplicates	ND	(1,2) (3,4) split = (1,005-10-021814-03015)
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: *water*

1	OS-10_021814_01 SUS	11		21		31	
2	OS-10_021814_36 SUS	12		22		32	
3	OS-10_021814_01 DIS	13		23		33	
4	OS-10_021814_36 DIS	14		24		34	
5	OS-10_021814_01 DISDUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: *SUS = particulate*  
*DIS = dissolved*

Method: Radiochemistry (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	/			
Were NIST traceable standards used for all calibrations?	/			
Was the check source identified by activity and radionuclide?	/			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	/			
<b>III. Blanks</b>				
Were blank analyses performed as required?	/			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		/		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			/	
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			/	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	/			
Were all duplicate sample duplicate error ratios (DER) <1.42?	/			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	/			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?			/	
Were tracer/carrier recoveries within the QC limits?			/	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?				
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were the Minimum Detectable Activities (MDA) < RL?	/			

LDC #: 31547622

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: ek  
 2nd Reviewer: g

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target analytes were detected in the field duplicates.		/		
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	

LDC #: 31547627

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: QR  
2nd Reviewer: R

**METHOD:** Radiochemistry (Method: see cover)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where, Found = activity of each analyte measured in the analysis of the sample.  
True = activity of each analyte in the source.

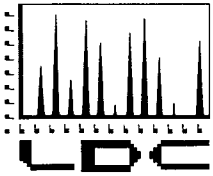
A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$       Where, S = Original sample activity  
D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Gross	250	312	80.13	79.93	Y
N	Matrix spike sample						
5	Duplicate RPD	Gross	ND	ND	NC	NC	Y
N	Chemical recovery						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 4, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on March 25, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project #31547:

### SDG #

280-51856-1/14-02030-OR/14-02088-OR/14-02031-OR  
280-51906-1/14-02034-OR/14-02035-OR/14-02089-OR  
280-51959-1/14-02037-OR/14-02038-OR/14-02112-OR/14-02118-OR  
280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR  
280-52128-1/14-02062-OR/14-02063-OR/14-02064-OR/14-02117-OR  
280-52250-1/14-02098/14-02099-OR  
280-52354-1/14-02126-OR

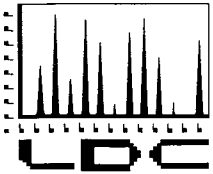
### Fraction

Gross Alpha and Beta, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Radium-228, Neptunium-236, Iodine-129, Carbon-14

The data validation was performed under EPA Level V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Multi Agency Radiological Laboratory Analytical Protocols, MARLAP, Manual, July 2004





- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 20, 2014  
**LDC Report Date:** April 1, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52354-1/14-02126-OR

**Sample Identification**

SP-T02A\_022014\_01  
SP-T02B\_022014\_01  
SP-T02C\_022014\_01  
SP-T02D\_022014\_01  
SP-T02A\_022014\_01DUP

## Introduction

This data review covers 5 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) analyses were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52354-1/14-02126-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-52354-1/14-02126-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52354-1/ 14-02126-OR	SP-T02A_022014_01 SP-T02B_022014_01 SP-T02C_022014_01 SP-T02D_022014_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-52354-1/14-02126-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-52354-1/14-02126-OR**

No Sample Data Qualified in this SDG



**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/20/14</u>
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	N/A	MS: not required / Dup
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	SP-T02A_022014_01	11		21		31	
2	SP-T02B_022014_01	12		22		32	
3	SP-T02C_022014_01	13		23		33	
4	SP-T02D_022014_01	14		24		34	
5	SP-T02A_022014_01DUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Radiochemistry (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	/			
Were NIST traceable standards used for all calibrations?	/			
Was the check source identified by activity and radionuclide?	/			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	/			
<b>III. Blanks</b>				
Were blank analyses performed as required?	/			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		/		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			/	
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			/	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	/			
Were all duplicate sample duplicate error ratios (DER) <1.42?	/			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	/			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?			/	
Were tracer/carrier recoveries within the QC limits?			/	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were the Minimum Detectable Activities (MDA) < RL?	/			

LDC #: 31547#34

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: ek  
2nd Reviewer: g

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target analytes were detected in the field duplicates.			/	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	

LDC #: 31547H39

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: QR  
 2nd Reviewer: Q

**METHOD:** Radiochemistry (Method: see cover)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

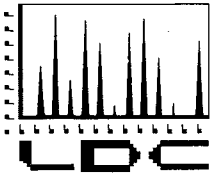
A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
<u>LCS</u>	Laboratory control sample	<u>H-3</u>	<u>7575</u>	<u>7190</u>	<u>105.29</u>	<u>105.23</u>	<u>Y</u>
<u>N</u>	Matrix spike sample						
<u>5</u>	Duplicate RPD	<u>H-3</u>	<u>2540</u>	<u>2540</u>	<u>0</u>	<u>0.08</u>	<u>Y</u>
<u>N</u>	Chemical recovery						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 9, 2014

SUBJECT: Revised Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the revised validation reports for the fractions listed below. Please replace the previously submitted reports with the enclosed revised reports.

**LDC Project # 31547:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-52030-1/14-02056-OR	Gross Alpha & Beta

Revision due to:

- MS/MSD association

**LDC Project #31419:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51905-1	Volatiles

Revision due to:

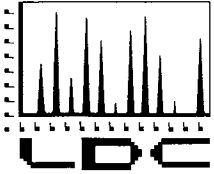
- Method Blank association

**LDC Project # 31361, 31380, 31419, 31438:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51492-1, 280-51632-1 280-51669-1, 280-51716-1 280-51766-1, 280-51797-1 280-51905-1, 280-51958-1 280-51987-1, 280-52029-1 280-52081-1, 280-52127-1	Wet Chemistry

Revision due to:

- Nitrate



Please note: SDG#s 280-51539-1 and 280-51586-1 were not in need of any revision at this time.

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng'.

Pei Geng  
Project Manager/Senior Chemist

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 7, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02056-OR

**Sample Identification**

RD-34A\_021114\_01 SUS  
RD-34C\_021114\_01 SUS  
PZ-105\_021114\_01 SUS  
RD-13\_021114\_01 SUS  
RD-13\_021114\_36 SUS  
RD-34A\_021114\_01 DIS  
RD-34C\_021114\_01 DIS  
PZ-105\_021114\_01 DIS  
RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS  
RD-34C\_021114\_01 SUSMS  
RD-34C\_021114\_01 SUSMSD  
RD-34C\_021114\_01 DISMS  
RD-34C\_021114\_01 DISMSD  
RD-34C\_021114\_01 DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 15 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Gross Alpha	0.15 pCi/L	All samples in SDG 280-52030-1/14-02056-OR

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks.

Samples EB\_RD-07\_020714 SUS and EB\_RD-07\_020714 DIS (from SDG 280-51959-1/14-02118-OR) were identified as equipment blanks. No gross alpha or beta was found.

Samples FB\_021214\_19 SUS and FB\_021214\_19 DIS (from SDG 280-52126-1/14-02067-OR) were identified as field blanks. No gross alpha or beta was found.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Isotope	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-34C_021114_01 DISMS/MSD (RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS)	Gross Alpha	74 (75-125)	-	-	J (all detects) UJ (all non-detects)	A

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross Alpha	76 (80-120)	All samples in SDG 280-52030-1/14-02056-OR	J (all detects) UJ (all non-detects)	P

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02056-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

Samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS and samples RD-13\_021114\_01 SUS and RD-13\_021114\_36 SUS were identified as field duplicates. No gross alpha or beta was detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01 DIS	RD-13_021114_36 DIS			
Gross Alpha	6.0	22	114 ( $\leq 35$ )	J (all detects)	A
Gross Beta	4.9	3.7	28 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52030-1/ 14-02056-OR	RD-34A_021114_01 SUS RD-34C_021114_01 SUS PZ-105_021114_01 SUS RD-13_021114_01 SUS RD-13_021114_36 SUS RD-34A_021114_01 DIS RD-34C_021114_01 DIS PZ-105_021114_01 DIS RD-13_021114_01 DIS RD-13_021114_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)
280-52030-1/ 14-02056-OR	RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects)	A	Field duplicates (RPD) (*XI)

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

7/14

LDC #: 31547D22 **VALIDATION COMPLETENESS WORKSHEET**  
 SDG #: 280-52030-1/14-02056-OR/14-02057-OR/14-02068-OR Level V  
 Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 3-28-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	SW	MS/MSD DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 4*5* D = 9+10
XI.	Field blanks	ND	EB = EB-RD-07-020714 SUS } SDG: 280-51959-1/ EB = EB-RD-07-020714 DIS } 14-02118-OR FB = FB-021214-19 SUS } SDG: 280-52126-1/ FB = FB-021214-19 DIS } 14-02067-OR

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	RD-34A_021114_01 SUS	11	RD-34C_021114_01 SUSMS	21		31	
2	RD-34C_021114_01 SUS	12	RD-34C_021114_01 SUSMSD	22		32	
3	PZ-105_021114_01 SUS	13	RD-34C_021114_01 DISMS	23		33	
4	RD-13_021114_01 SUS	14	RD-34C_021114_01 DISMSD	24		34	
5	RD-13_021114_36 SUS	15	# 7 DUP	25		35	
6	RD-34A_021114_01 DIS	16		26		36	
7	RD-34C_021114_01 DIS	17		27		37	
8	PZ-105_021114_01 DIS	18		28		38	
9	RD-13_021114_01 DIS	19		29		39	
10	RD-13_021114_36 DIS	20		30		40	PBW

Notes: "SUS" is particulate  
 "DIS" is dissolved

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** Radiochemistry, Method 900.0

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** all (>5x or ND)

Isotope	Blank ID	Blank Action Limit	Sample Identification													
	PB		No Qual's.													
Gross Alpha	0.15	0.75														

**CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:**

All contaminants within five times the method blank concentration were qualified as not detected, "U".







Method: Radiochemistry (900.0)

Analyte	Activity (pCi/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	9	10		
Gross Alpha	6.0	22	114	J dets/ A (X)
Gross Beta	4.9	3.7	28	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 6, 2014

**LDC Report Date:** April 7, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51905-1

**Sample Identification**

RD-16\_020614\_01  
TB\_RD-16\_020614  
RD-92\_020614\_01  
RD-14\_020614\_01  
TB\_RD-14\_020614  
WS-07\_020614\_01  
RD-33B\_020614\_01  
TB\_RD-33B\_020614  
RD-33C\_020614\_01  
RD-16\_020614\_01MS  
RD-16\_020614\_01MSD

## Introduction

This data review covers 11 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance check data were not reviewed for Level V.

## III. Initial Calibration

Initial calibration data were not reviewed for Level V.

## IV. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
MB 280-212579/7	2/12/14	Acetone	2.30 ug/L	TB_RD-16_020614 RD-92_020614_01 RD-14_020614_01 TB_RD-14_020614 WS-07_020614_01 RD-33B_020614_01 TB_RD-33B_020614 RD-33C_020614_01

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

Samples TB\_RD-16\_020614, TB\_RD-14\_020614, and TB\_RD-33B\_020614 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-16_020614	2/6/14	Acetone	3.3 ug/L	RD-16_020614_01 RD-92_020614_01

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-14_020614	2/6/14	Acetone	3.0 ug/L	RD-14_020614_01 WS-07_020614_01
TB_RD-33B_020614	2/6/14	Acetone	2.8 ug/L	RD-33B_020614_01 RD-33C_020614_01

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	Acetone	2.0 ug/L	WS-07_020614_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	WS-07_020614_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
WS-07_020614_01	Acetone	2.8 ug/L	10U ug/L
RD-14_020614_01	Acetone	2.4 ug/L	10U ug/L
RD-33B_020614_01	Acetone	2.1 ug/L	10U ug/L
RD-33C_020614_01	Acetone	2.1 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
RD-16_020614_01	Toluene-d8	124 (88-110)	All TCL compounds	J (all detects)	A
MB 213218/5	Toluene-d8	119 (88-110)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

Internal standards data were not reviewed for Level V.

## XI. Target Compound Identifications

Raw data were not reviewed for this SDG.

## XII. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51905-1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

#### **XIV. System Performance**

Raw data were not reviewed for this SDG.

#### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51905-1	RD-16_020614_01	All TCL compounds	J (all detects)	A	Surrogate spikes (%R) (S)
280-51905-1	RD-16_020614_01 TB_RD-16_020614 RD-92_020614_01 RD-14_020614_01 TB_RD-14_020614 WS-07_020614_01 RD-33B_020614_01 TB_RD-33B_020614 RD-33C_020614_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51905-1	WS-07_020614_01	Acetone	10U ug/L	A	T, F
280-51905-1	RD-14_020614_01	Acetone	10U ug/L	A	T
280-51905-1	RD-33B_020614_01	Acetone	10U ug/L	A	T
280-51905-1	RD-33C_020614_01	Acetone	10U ug/L	A	T

LDC #: 31419A1a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 3/14/14

SDG #: 280-51905-1

Level V

Page: 1 of 1

Laboratory: Test America Inc.

Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/06/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	N	
IV.	Continuing calibration/ICV	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	
XI.	Target compound identification	N	
XII.	Compound quantitation/RL/LOQ/LODs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2 5 8 FB = FB_02144-19

Note: A = Acceptable ND = No compounds detected D = Duplicate  
 N = Not provided/applicable R = Rinsate TB = Trip blank  
 SW = See worksheet FB = Field blank EB = Equipment blank

(280-52081-1)  
 EB = EB\_RD-07\_020714  
 (280-51958-1)

Validated Samples:

Water

1	RD-16_020614_01	11	RD-16_020614_01MSD	21	MB 280-213218/5	31
2	TB_RD-16_020614	12		22	↓ -212579/7	32
3	RD-92_020614_01	13		23		33
4	RD-14_020614_01	14		24		34
5	TB_RD-14_020614	15		25		35
6	WS-07_020614_01	16		26		36
7	RD-33B_020614_01	17		27		37
8	TB_RD-33B_020614	18		28		38
9	RD-33C_020614_01	19		29		39
10	RD-16_020614_01MS	20		30		40

VOC's

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC. 1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropane	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31419 A1a

## VALIDATION FINDINGS WORKSHEET

### Blanks

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?

Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?

Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 2/12/14

Conc. units: ug/L

Associated Samples: 2-9

JVG  
(A)

(B)

Compound	Blank ID	Sample Identification								
		2	4	5	6	7	8	9		
<u>MB</u>	<u>286-21257</u>	<u>1/7</u>								
<u>F</u>	<u>2.30</u>	<u>3.3/10u</u>	<u>2.4/10u</u>	<u>3.0/10u</u>	<u>2.8/10u</u>	<u>2.1/10u</u>	<u>2.8/10u</u>	<u>2.1/10u</u>		

Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification								

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 31419 Air

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 2  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y/N/N/A Were field blanks identified in this SDG?  
Y/N/N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/12/14 ; 2/07/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: EB Associated Samples: 6 (F)

Compound	FB (02/12) Blank ID	EB (2/07)	Sample Identification							
	FB_021214_19	EB_RD-07-020714	6							
K	0.50									
F		2.0	2.8/104							

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/06/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: Associated Samples: 1, 3 (ND)

Compound	Blank ID	Sample Identification								
	2									
F	3.3									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31419 A1a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 2 of 2

Reviewer: JVG

2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/86/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 4, 6 (T)

Compound	Blank ID	Sample Identification							
	<u>45</u>	<u>4</u>	<u>6</u>						
<u>F</u>	<u>3.0</u>	<u>2.4/bu</u>	<u>2.8/10u</u>						

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/86/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_ Associated Samples: 7, 9 (T)

Compound	Blank ID	Sample Identification							
	<u>48</u>	<u>7</u>	<u>9</u>						
<u>F</u>	<u>2.8</u>	<u>2.1/10u</u>	<u>2.1/10u</u>						

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** April 8, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51492-1

**Sample Identification**

EB\_RD-100\_012414  
RD-100\_012414\_01A  
PZ-091\_012414\_01  
RD-46A\_012414\_01  
RD-46B\_012414\_01  
EB\_RD-100\_012414MS  
EB\_RD-100\_012414MSD



## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Chloride, Fluoride, Nitrate, Nitrite, and Sulfate, EPA SW 846 Method 7196A for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, and EPA SW 846 Method 9012A for Cyanide.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-07\_020714 (from SDG 280-51958-1), EB\_RD-109\_021014 (from SDG 280-51987-1), and EB\_RD-100\_012414 were identified as equipment blanks. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB_RD-100_012414	1/24/14	Sulfate	0.42 mg/L	RD-100_012414_01A PZ-091_012414_01

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Sulfate	0.77 mg/L	RD-100_012414_01A PZ-091_012414_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51492-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-100\_012414\_01A and RD-100\_012414\_03A (from SDG 14A122) were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-100_012414_01A	RD-100_012414_03A			
Sulfate	640	611	5 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51492-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51492-1	EB_RD-100_012414 RD-100_012414_01A PZ-091_012414_01 RD-46A_012414_01 RD-46B_012414_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51492-1**

No Sample Data Qualified in this SDG

LDC #: 31361A6  
 SDG #: 280-51492-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

9MB Level V

Date: 2-27-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

Cyanide (EPA SW846 Method 9012A)

**METHOD:** Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate, Nitrite, Sulfate (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-24-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS / LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	split = 2 + RD-100_012414_03A (SDG: 14A122)
XI	Field blanks	SW	EB=1, EB=EB-RD-07_020714* (SDG: 280-51958)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB = EB-RD-109-021014\* (SDG: 280-51987-1)  
 FB = FB-021214-19 (SDG: 280-52081-1)

Validated Samples:  
 all water

1	EB_RD-100_012414	11		21		31	
2	RD-100_012414_01A	12		22		32	
3	PZ-091_012414_01	13		23		33	
4	RD-46A_012414_01	14		24		34	
5	RD-46B_012414_01	15		25		35	
6	EB_RD-100_012414MS	16		26		36	
7	EB_RD-100_012414MSD	17		27		37	
8		18		28		38	
9		19		29	PBW1	39	
10		20		30	PBW2	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## VALIDATION FINDINGS WORKSHEET

### Field Blanks

**METHOD:** Inorganics, EPA Method See Cover

N N/A Were field blanks identified in this SDG?

N N/A Were target analytes detected in the field blanks?

**Blank units:** mg/L **Associated sample units:** mg/L

**Sampling date:** see below Soil factor applied NA

**Field blank type:** (circle one) Field Blank / Rinsate / ~~Other~~; EB Associated Samples: 2,3 (>5x)

Analyte	Blank ID	Blank ID	Action Limit	Sample Identification							
	FB_021214_19 sampled: 2/12/14	1 sampled: 1/24/14		No Qual's.							
SO4	0.77	0.42	3.85								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	2	RD-100_012414_03A		
Sulfate	640	611	5	



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** April 8, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01  
RD-11\_012914\_36  
RD-12\_012914\_01  
HAR-16\_012914\_01  
HAR-18\_012914\_01  
WS-14\_012914\_01  
RD-11\_012914\_01DUP  
HAR-16\_012914\_01DUP  
HAR-18\_012914\_01MS  
HAR-18\_012914\_01MSD  
RD-78\_012914\_01  
HAR-18\_012914\_01DUP

## Introduction

This data review covers 12 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Chloride, Fluoride, Nitrate, and Sulfate, Standard Method 2510B for Conductivity, EPA SW 846 Method 9012A for Total Cyanide, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, Standard Method 4500 S2-D for Sulfide, Standard Method 2540C for Total Dissolved Solids, and EPA Method 180.1 for Turbidity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-51632-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flags	A or P
	RD-11_012914_01	RD-11_012914_36			
Ammonia as N	0.63 mg/L	0.63 mg/L	0 (≤35)	-	-
Fluoride	0.56 mg/L	0.56 mg/L	0 (≤35)	-	-
pH	8.19 units	8.26 units	1 (≤35)	-	-
Sulfide	0.042 mg/L	0.037 mg/L	13 (≤35)	-	-

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Alkalinity	120 mg/L	114 mg/L	5 (≤35)	-	-
Chloride	59 mg/L	54.3 mg/L	8 (≤35)	-	-
Fluoride	0.34 mg/L	0.342 mg/L	1 (≤35)	-	-
Nitrate	29 mg/L	28.2 mg/L	3 (≤35)	-	-
Perchlorate	320 ug/L	330 ug/L	3 (≤35)	-	-
pH	6.60 units	6.40 units	3 (≤35)	-	-
Specific conductance	550 umhos/cm	567 umhos/cm	3 (≤35)	-	-
Sulfate	63 mg/L	53.9 mg/L	16 (≤35)	-	-
Total dissolved solids	360 mg/L	381 mg/L	6 (≤35)	-	-

Analyte	Concentration		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
Turbidity	2.6 NTU	2.57 NTU	1 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Data Qualification Summary - SDG 280-51632-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51632-1	RD-11_012914_01 RD-11_012914_36 RD-12_012914_01 HAR-16_012914_01 HAR-18_012914_01 WS-14_012914_01 RD-78_012914_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31361D6  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V *mg*

Date: 2-27-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: *[Signature]*

*and Nitrate)*

**METHOD:** Alkalinity (SM2320B), Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate-N, Sulfate (EPA Method 300.0), Conductivity (SM2510B), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D), TDS (SM2540C), Turbidity (EPA Method 180.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-29-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	{ split = 4 + HAR-16_012914_03 (SDG: 14A148)
X.	Field duplicates	SW	{ D = 1 + 2
XI	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
*all water*

1	RD-11_012914_01	11	RD-78_012914_01	21		31	
2	RD-11_012914_36	12	#5 DUP	22		32	
3	RD-12_012914_01	13		23		33	
4	HAR-16_012914_01	14		24		34	
5	HAR-18_012914_01	15		25		35	
6	WS-14_012914_01	16		26		36	
7	RD-11_012914_01DUP	17		27		37	
8	HAR-16_012914_01DUP	18		28	PBW1	38	
9	HAR-18_012914_01MS	19		29	PBW2	39	
10	HAR-18_012914_01MSD	20		30	PBW3	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





Method: Inorganics (see cover)

2nd Reviewer:   

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	1	2		
Ammonia as N	0.63	0.63	0	
Fluoride	0.56	0.56	0	
pH (pH units)	8.19	8.26	1	
Sulfide	0.042	0.037	13	

Field Duplicates

Reviewer: MG

Method: Inorganics (see cover)

2nd Reviewer: /

split

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	4	HAR-16_012914_03		
Alkalinity	120	114	5	
Chloride	59	54.3	8	
Fluoride	0.34	0.342	1	
Nitrate as NO3	29	28.2	3	
Perchlorate (ug/L)	320	330	3	
pH (pH units)	6.60	6.40	3	
Specific Conductance (umhos/cm)	550	567	3	
Sulfate	63	53.9	16	
TDS	360	381	6	
Turbidity (NTU)	2.6	2.57	1	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 30, 2014  
**LDC Report Date:** April 8, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51669-1

**Sample Identification**

HAR-26\_013014\_01  
RD-45A\_013014\_01  
RD-45B\_013014\_01  
PZ-016G\_013014\_01  
RD-77\_013014\_01  
RD-77\_013014\_36  
RD-45B\_013014\_01MS  
RD-45B\_013014\_01MSD  
RD-45B\_013014\_01DUP  
RD-77\_013014\_01DUP

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 2320B for Alkalinity, EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Chloride, Fluoride, Nitrate, and Sulfate, Standard Method 2510B for Conductivity, EPA SW 846 Method 9012A for Total Cyanide, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, Standard Method 4500 S2-D for Sulfide, Standard Method 2540C for Total Dissolved Solids, and EPA Method 180.1 for Turbidity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51669-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

Samples RD-77\_013014\_01 and RD-77\_013014\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD (Limits)	Flags	A or P
	RD-77_013014_01	RD-77_013014_36			
Alkalinity	220 mg/L	220 mg/L	0 ( $\leq 35$ )	-	-
Chloride	36 mg/L	36 mg/L	0 ( $\leq 35$ )	-	-
Fluoride	0.28 mg/L	0.28 mg/L	0 ( $\leq 35$ )	-	-
Nitrate	15 mg/L	15 mg/L	0 ( $\leq 35$ )	-	-
pH	7.16 units	7.14 units	0 ( $\leq 35$ )	-	-
Specific conductance	640 umhos/cm	600 umhos/cm	6 ( $\leq 35$ )	-	-
Sulfate	74 mg/L	73 mg/L	1 ( $\leq 35$ )	-	-
Total dissolved solids	430 mg/L	430 mg/L	0 ( $\leq 35$ )	-	-
Turbidity	0.22 NTU	0.20U NTU	10 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51669-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51669-1	HAR-26_013014_01 RD-45A_013014_01 RD-45B_013014_01 PZ-016G_013014_01 RD-77_013014_01 RD-77_013014_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51669-1**

No Sample Data Qualified in this SDG

LDC #: 31380A6  
 SDG #: 280-51669-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

9m/s.  
 Nitrate,

**METHOD:** Alkalinity (SM2320B), Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate-N, Sulfate (EPA Method 300.0), Conductivity (SM2510B), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D), TDS (SM2540C), Turbidity (EPA Method 180.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-30-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP #10 OK by difference
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D=5+6
XI.	Field blanks	ND	EB = EB-RD-100-012414 (SDG: 280-51492-1) FB = FB-021214-19 (SDG: 280-52081-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

EB = EB-RD-07-020714 (SDG: 280-51958-1)  
 EB = EB-RD-109-021014 (SDG: 280-51987-1)

1	HAR-26_013014_01	11		21		31	
2	RD-45A_013014_01	12		22		32	
3	RD-45B_013014_01	13		23		33	
4	PZ-16G_013014_01	14		24		34	
5	RD-77_013014_01	15		25		35	
6	RD-77_013014_36	16		26		36	
7	RD-45B_013014_01MS	17		27		37	
8	RD-45B_013014_01MSD	18		28		38	
9	RD-45B_013014_01DUP	19		29	PBW 1	39	
10	RD-77_013014_01DUP	20		30	PBW 2	40	

Notes: ID correction PZ-016G  
 ↑





Method: Inorganics (see cover)

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	5	6		
Alkalinity	220	220	0	
Chloride	36	36	0	
Fluoride	0.28	0.28	0	
Nitrate	15	15	0	
pH (pH units)	7.16	7.14	0	
Specific Conductance ( $\mu\text{mhos/cm}$ )	640	600	6	
Sulfate	74	73	1	
TDS	430	430	0	
Turbidity (NTU)	0.22	0.20U	10	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 31, 2014  
**LDC Report Date:** April 8, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51716-1

**Sample Identification**

ES-29\_013114\_01  
WS-11\_013114\_01  
WS-11\_013114\_01MS  
WS-11\_013114\_01MSD  
WS-11\_013114\_01DUP

## Introduction

This data review covers 5 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Chloride and Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51716-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Data Qualification Summary - SDG 280-51716-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51716-1	ES-29_013114_01 WS-11_013114_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51716-1**

No Sample Data Qualified in this SDG

LDC #: 31380B6  
 SDG #: 280-51716-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

METHOD: Chloride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1-31-14</u>
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	ES-29_013114_01	11		21		31	
2	WS-11_013114_01	12		22		32	
3	WS-11_013114_01MS	13		23		33	
4	WS-11_013114_01MSD	14		24		34	
5	WS-11_013114_01DUP	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** April 8, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51766-1

**Sample Identification**

RD-37\_020314\_01  
HAR-01\_020314\_01  
C-1\_020314\_01  
RD-35B\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD  
HAR-01\_020314\_01DUP

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Fluoride, Nitrate, and Nitrite, EPA Method 314.0 for Perchlorate, EPA SW 846 Method 9040B for pH, EPA SW 846 Method 9012A for Cyanide, and Standard Method 4500 S2 D for Sulfide.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Cyanide	0.00246 mg/L	HAR-01_020314_01

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
HAR-01_020314_01MS/MSD (HAR-01_020314_01)	Sulfide	78 (83-112)	78 (83-112)	-	J (all detects) UJ (all non-detects)	A

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51766-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01	RD-73_020314_36			
Nitrate	23	22	6 ( $\leq 35$ )	-	-
Nitrite	0.59	0.57	3 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51766-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51766-1	HAR-01_020314_01	Sulfide	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-51766-1	RD-37_020314_01 HAR-01_020314_01 C-1_020314_01 RD-35B_020314_01 RD-73_020314_01 RD-73_020314_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51766-1**

No Sample Data Qualified in this SDG

LDC #: 31380C6  
 SDG #: 280-51766-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-6-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Ammonia-N (EPA Method 350.1), Fluoride, Nitrate-N, Nitrite (EPA Method 300.0), Total Cyanide (EPA SW846 Method 9012A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B), Sulfide (SM4500 S2 D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-3-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates <sup>9MB</sup>	SWA	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D=5+6
XI.	Field blanks	ND	EB = EB-RD-100-012414 (SDG: 280-51492-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

FB = FB-021214-19 (SDG: 280-52081-1)  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

EB = EB-RD-07-020714 (SDG: 280-51958-1)  
 EB = EB-RD-109-021014 (SDG: 280-51987-1)

1	RD-37_020314_01	11		21		31	
2	HAR-01_020314_01	12		22		32	
3	C-1_020314_01	13		23		33	
4	RD-35B_020314_01	14		24		34	
5	RD-73_020314_01	15		25		35	
6	RD-73_020314_36	16		26		36	
7	HAR-01_020314_01MS	17		27		37	
8	HAR-01_020314_01MSD	18		28		38	
9	HAR-01_020314_01DUP	19		29	PBW1	39	
10		20		30	PBW2	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





LDC #: 31380C6

### VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: R

METHOD: Inorganics, Method See Cover

Conc. units: mg/L

Associated Samples: 2 (ND)

Analyte	Blank ID	Blank ID	Blank Action Limit											
	PB	ICB/CCB (mg/L)		No Qual.										
CN	0.00246		0.0123											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".



Method: Inorganics (see cover)

2nd Reviewer: [Signature]

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Nitrate as N <del>CL</del>	5.2 23	4.8 22	6	
Nitrite	0.59	0.57	3	

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** April 8, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01  
HAR-25\_020414\_01MS  
HAR-25\_020414\_01MSD  
HAR-25\_020414\_01DUP

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia as Nitrogen, EPA Method 300.0 for Fluoride and Nitrate, EPA SW 846 Method 7196A for Hexavalent Chromium, EPA Method 314.0 for Perchlorate, and EPA SW 846 Method 9040B for pH.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
HAR-25_020414_01	Nitrate	54.50 hours	48 hours	J (all detects) UJ (all non-detects)	P
	pH	57.25 hours	48 hours	J (all detects) UJ (all non-detects)	
HAR-25_020414_01DUP	pH	57.25 hours	48 hours	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Fluoride	0.0732 mg/L	All samples from SDG 280-51797-1

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51797-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01	Nitrate pH	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51797-1	HAR-25_020414_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG



LDC #: 31380D6  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 3-7-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Ammonia-N (EPA Method 350.1), Fluoride, Nitrate-N (EPA Method 300.0), Hexavalent Chromium (EPA SW846 Method 7196A), Perchlorate (EPA Method 314.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 2-4-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 Water

1	HAR-25_020414_01	11		21		31	
2	HAR-25_020414_01MS	12		22		32	
3	HAR-25_020414_01MSD	13		23		33	
4	HAR-25_020414_01DUP	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_







**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 6, 2014

**LDC Report Date:** April 8, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51905-1

**Sample Identification**

RD-14\_020614\_01  
RD-33B\_020614\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Fluoride	0.0902 mg/L	All samples in SDG 280-51905-1

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RD-14_020614_01	Fluoride	0.27 mg/L	0.27U mg/L
RD-33B_020614_01	Fluoride	0.44 mg/L	0.44U mg/L

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51905-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51905-1	RD-14_020614_01 RD-33B_020614_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51905-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-51905-1	RD-14_020614_01	Fluoride	0.27U mg/L	A	B
280-51905-1	RD-33B_020614_01	Fluoride	0.44U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014**

**Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51905-1**

No Sample Data Qualified in this SDG

LDC #: 31419A6  
 SDG #: 280-51905-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-11-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JG

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-6-14
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	SW	
V	Matrix Spike/Matrix Spike Duplicates	N	client specified
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	RD-14_020614_01	11		21		31	
2	RD-33B_020614_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



LDC #: 31419A6

### VALIDATION FINDINGS WORKSHEET

Page: 1 of 1

#### Blanks

Reviewer: MG

2nd Reviewer: JL

METHOD: Inorganics, Method 300.0

Conc. units: mg/L

Associated Samples: all Qual: U (B)

Analyte	Blank ID	Blank ID	Blank Action Limit											
	PB	ICB/CCB (mg/L)		1	2									
F	0.0902		0.451	0.27	0.44									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 7, 2014

**LDC Report Date:** April 9, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level IV & V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51958-1

**Sample Identification**

EB\_RD-07\_020714  
RD-07\_020714\_01A\*\*  
RD-21\_020714\_01\*\*  
RD-20\_020714\_01\*\*  
RD-18\_020714\_01  
RD-18\_020714\_36  
RD-29\_020714\_01\*\*  
RD-86\_020714\_01

## Introduction

This data review covers 8 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
EB_RD-07_020714	Nitrate	109.25 hours	48 hours	J (all detects) R (all non-detects)	P
RD-07_020714_01A**	Nitrate	108.75 hours	48 hours	J (all detects) R (all non-detects)	P
RD-21_020714_01** RD-20_020714_01**	Nitrate	107.00 hours	48 hours	J (all detects) R (all non-detects)	P
RD-29_020714_01**	Nitrate	110.25 hours	48 hours	J (all detects) R (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Sample EB\_RD-07\_020714 was identified as an equipment blank. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable for samples on which an EPA Level IV review was performed.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG280-51958-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by EPA Level V criteria.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-18\_020714\_01 and RD-18\_020714\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-18_020714_01	RD-18_020714_36			
Fluoride	0.33	0.32	3 (≤35)	-	-



**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51958-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A** RD-21_020714_01** RD-20_020714_01** RD-29_020714_01**	Nitrate	J (all detects) R (all non-detects)	P	Technical holding time (H)
280-51958-1	EB_RD-07_020714 RD-07_020714_01A** RD-21_020714_01** RD-20_020714_01** RD-18_020714_01 RD-18_020714_36 RD-29_020714_01** RD-86_020714_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51958-1**

No Sample Data Qualified in this SDG

LDC #: 31419B6  
 SDG #: 280-51958-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V / IV

Date: 3-11-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JNB

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

Validation Area			Comments
I.	Technical holding times	SW	Sampling dates: <u>2-7-14</u>
II.	Initial calibration	A	<u>Not reviewed for V</u>
III.	Calibration verification	A	<u>↓</u>
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	N	<u>client specified</u>
VI.	Duplicates	N	<u>" "</u>
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	A	<u>Not reviewed for IV</u>
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	<u>D = 5 + 6</u>
XI.	Field blanks	ND	<u>EB = 1 FB = FB-021214-19</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SDG: 280-52081-1

Validated Samples:  
all water

\*\* Level IV

1	EB_RD-07_020714	11		21		31	
2	RD-07_020714_01A **	12		22		32	
3	RD-21_020714_01 **	13		23		33	
4	RD-20_020714_01 **	14		24		34	
5	RD-18_020714_01	15		25		35	
6	RD-18_020714_36	16		26		36	
7	RD-29_020714_01 **	17		27		37	
8	RD-86_020714_01	18		28		38	
9		19		29		39	
10		20	<u>PBW</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method recovery)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.				
Cooler temperature criteria was met.				
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?				
Were the proper number of standards used?				
Were all initial calibration correlation coefficients $\geq 0.995$ ?				
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?				
Were titrant checks performed as required? (Level IV only)				
Were balance checks performed as required? (Level IV only)				
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?				
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.				
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.				
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.				
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.				
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?				
Was an LCS analyzed per extraction batch?				
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?				
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?				
Were the performance evaluation (PE) samples within the acceptance limits?				

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?				
Were detection limits < RL?				
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.				
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.				
Target analytes were detected in the field duplicates.				
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.				
Target analytes were detected in the field blanks.				





VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (300.0)

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Fluoride	0.33	0.32	3	

LDC #: 341986

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**Method:** Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of NO<sub>3</sub><sup>-</sup>N was recalculated. Calibration date: 2/15/14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where,

Found = concentration of each analyte measured in the analysis of the ICV or CCV solution

True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	NO <sub>3</sub> <sup>-</sup> N	s1	0.2	3850865	1.0000	NA	Y
		s2	0.5	9811957			
		s3	1	20331830			
		s4	4	85514523			
		s5	8	172627112			
		s6	10	216740293			
Calibration verification	↓	ICV	4	4.02	101	100	↓
Calibration verification	↓	CCV	5	5.00	100	100	↓
Calibration verification							

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	NO <sub>3</sub> N	4.97	5	99	99	Y
N	Matrix spike sample		(SSR-SR)				
N	Duplicate sample						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 10, 2014  
**LDC Report Date:** April 8, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51987-1

### Sample Identification

PZ-103\_021014\_01\*\*  
RD-27\_021014\_01  
EB\_RD-109\_021014  
RD-109\_021014\_01A\*\*  
RD-110\_021014\_01A\*\*  
RD-103(P07)\_021014\_01  
RD-27\_021014\_01MS  
RD-27\_021014\_01MSD  
RD-27\_021014\_01DUP

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride, Nitrate, and Nitrite.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
PZ-103_021014_01**	Nitrate	51.50 hours	48 hours	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Samples EB\_RD-100\_012414 (from SDG 280-51492-1), EB\_RD-07\_020714 (from SDG 280-51958-1), and EB\_RD-109\_021014 were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable for samples on which an EPA Level IV review was performed.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51987-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by EPA Level V criteria.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51987-1**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51987-1	PZ-103_021014_01**	Nitrate	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51987-1	PZ-103_021014_01** RD-27_021014_01 EB_RD-109_021014 RD-109_021014_01A** RD-110_021014_01A** RD-103(P07)_021014_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51987-1**

No Sample Data Qualified in this SDG

**VALIDATION COMPLETENESS WORKSHEET**

Level V *W*

Date: 3-11-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: JLC

*9MH*

METHOD: Fluoride, Nitrate ~~N~~, Nitrite ~~N~~ (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 2-10-14
II	Initial calibration	A <del>N</del>	not reviewed for Level V
III.	Calibration verification	A <del>N</del>	not reviewed for Level V
IV	Blanks	A	CCBs not reviewed for level V
V	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	A <del>N</del>	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	ND	EB=3, EB=EB-RD-100-012414 (SDG: 280-5149 2-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*\*level IV all water*

*FB=FB-021214-19 (SDG 280-52081-1)*  
~~FB=FB-021214~~  
*EB=EB-RD-07-020714 (SDG: 280-51958-1)*

1	PZ-103_021014_01	<del>**</del>	11	21	31
2	RD-27_021014_01		12	22	32
3	EB_RD-109_021014		13	23	33
4	RD-109_021014_01A	<del>**</del>	14	24	34
5	RD-110_021014_01A	<del>**</del>	15	25	35
<i>WJ</i> 6	RD-103(P/07)_021014_01		16	26	36
7	RD-27_021014_01MS		17	27	37
8	RD-27_021014_01MSD		18	28	38
9	RD-27_021014_01DUP		19	29	39 PBW1
10			20	30	40 PBW2

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Method: Inorganics (EPA Method 300.0)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL (≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were < 5X the CRDL.	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.		✓		





LDC #: 31419C6

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JVG

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of F was recalculated. Calibration date: 2-6-14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc (ug/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	F	s1	0.2	4770727	0.9995	not reported	Y
		s2	0.5	11831425			
		s3	1	23796339			
		s4	4	87437869			
		s5	8	185732724			
		s6	10	228200556			
Calibration verification	<del>NO<sub>3</sub>-N</del> <sup>N</sup>	<sup>1850</sup> CCV	5.00 (mg/L)	5.00 (mg/L)	100	100	
Calibration verification	NO <sub>2</sub>	<sup>1850</sup> CCV	16.46 (mg/L)	16.5 (mg/L)	100	100	
Calibration verification	F	<sup>1948</sup> CCV	5.22 (mg/L)	5.00 (mg/L)	104	104	

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31419C6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: JVZ

**METHOD:** Inorganics, Method 300.0

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where,      Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$       Where,      S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
1147 LCS	Laboratory control sample	NO <sub>3</sub> -N	4.97 (mg/L)	5.00 (mg/L)	99	99	Y
—	Matrix spike sample	—	(SSR-SR) —	—	—	—	—
—	Duplicate sample	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 9, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level IV & V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52029-1

**Sample Identification**

RD-34A\_021114\_01  
RD-34C\_021114\_01  
RD-93\_021114\_01A\*\*  
PZ-106\_021114\_01  
RD-13\_021114\_01  
RD-13\_021114\_36  
RD-34C\_021114\_01MS  
RD-34C\_021114\_01MSD  
RD-34C\_021114\_01DUP



## Introduction

This data review covers 9 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
RD-93_021114_01A**	Nitrate	53.75 hours	48 hours	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable for samples on which an EPA Level IV review was performed.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG280-52029-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by EPA Level V criteria.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-13\_021114\_01 and RD-13\_021114\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01	RD-13_021114_36			
Fluoride	0.41	0.41	0 (≤35)	-	-

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-52029-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52029-1	RD-93_021114_01A**	Nitrate	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-52029-1	RD-34A_021114_01 RD-34C_021114_01 RD-93_021114_01A** PZ-106_021114_01 RD-13_021114_01 RD-13_021114_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-52029-1**

No Sample Data Qualified in this SDG

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V / IV

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 2-11-14
II.	Initial calibration	A	Not reviewed for v
III.	Calibration verification	A	↓
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	A	DUP
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	A	Not reviewed for v
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D=5+6
XI.	Field blanks	ND	FB = FB_021214_19 (SDG: 280-52081-1) EB = EB_RD-07_020714 (SDG: 280-51958-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

\*\*Level IV

1	RD-34A_021114_01	11		21		31	
2	RD-34C_021114_01	12		22		32	
3	RD-93_021114_01A **	13		23		33	
4	PZ-106_021114_01	14		24		34	
5	RD-13_021114_01	15		25		35	
6	RD-13_021114_36	16		26		36	
7	RD-34C_021114_01MS	17		27		37	
8	RD-34C_021114_01MSD	18		28		38	
9	# 2 DUP	19		29 <sup>1</sup>	PBW1	39	
10		20		30 <sup>2</sup>	PBW2	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	<input checked="" type="checkbox"/>			
Were the proper number of standards used?	<input checked="" type="checkbox"/>			
Were all initial calibration correlation coefficients > 0.995?	<input checked="" type="checkbox"/>			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	<input checked="" type="checkbox"/>			
Were titrant checks performed as required? (Level IV only)			<input checked="" type="checkbox"/>	
Were balance checks performed as required? (Level IV only)			<input checked="" type="checkbox"/>	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		<input checked="" type="checkbox"/>		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.		<input checked="" type="checkbox"/>		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			<input checked="" type="checkbox"/>	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL (≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.			<input checked="" type="checkbox"/>	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>			
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	<input checked="" type="checkbox"/>			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		<input checked="" type="checkbox"/>		
Were the performance evaluation (PE) samples within the acceptance limits?			<input checked="" type="checkbox"/>	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were detection limits < RL?	/			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target analytes were detected in the field duplicates.			/	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target analytes were detected in the field blanks.		/		

**VALIDATION FINDINGS WORKSHEET  
Sample Specific Analysis Reference**

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1,2,5,6	W	pH TDS Cl F <u>(F)</u> NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
3.4	↓	pH TDS Cl F <u>(NO<sub>3</sub>)</u> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
QC 7,8,9	↓	pH TDS Cl F <u>(F)</u> NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>
		pH TDS Cl F NO <sub>3</sub> NO <sub>2</sub> SO <sub>4</sub> PO <sub>4</sub> ALK CN <sup>-</sup> NH <sub>3</sub> TKN TOC CR <sup>6+</sup> ClO <sub>4</sub>

Comments: \_\_\_\_\_





Method: Inorganics (300.0)

Analyte	Concentration (mg/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Fluoride	0.41	0.41	0	

LDC #: 31419EG

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: OR  
 2nd Reviewer: OR

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of F was recalculated. Calibration date: 2/5/14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	NO <sub>3</sub> -N	s1	0.2	7437402	1.0000	NA	Y
		s2	0.5	19412065			
		s3	1	40119398			
		s4	4	165821735			
		s5	8	333767871			
		s6	10	415124815			
Calibration verification		ICV	4	3.88	97	97	
Calibration verification		CCV	5	4.93	99	99	Y
Calibration verification							

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
 D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
<u>LES</u>	Laboratory control sample	<u>NO<sub>3</sub>-N</u>	<u>4.77</u>	<u>5</u>	<u>95</u>	<u>95</u>	<u>Y</u>
<u>N</u>	Matrix spike sample		(SSR-SR)				
<u>N</u>	Duplicate sample						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3141966

### VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: 1 of 1  
Reviewer: GR  
2nd reviewer: AK

METHOD: Inorganics, Method see cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Have results been reported and calculated correctly?
- Y N N/A Are results within the calibrated range of the instruments?
- Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for NO<sub>3</sub> reported with a positive detect were recalculated and verified using the following equation:

Concentration =  $(Area(2 \times 10^{-8}) + 0.0289) \frac{62}{14}$       Recalculation:  $(411849553(2 \times 10^{-8}) + 0.0289) \frac{62}{14} = 43.8 \text{ mg/L}$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	<u>3</u>	<u>NO<sub>3</sub></u>	<u>44</u>	<u>44</u>	<u>Y</u>

Note: \_\_\_\_\_  
\_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 8, 2014  
**Matrix:** Water  
**Parameters:** Wet Chemistry  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-52081-1

### Sample Identification

RD-54A\_021214\_01  
RD-85\_021214\_01  
RD-103(P02)\_021214\_01  
RD-103(QA15)\_021214\_01  
RD-103(QA20)\_021214\_01  
FB\_021214\_19  
RD-23\_021214\_01  
RD-50\_021214\_01  
FB\_021214\_19MS  
FB\_021214\_19MSD

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride, Nitrate, Nitrite, and Sulfate, EPA SW846 Method 9012A for Total Cyanide, EPA SW846 Method 7196A for Hexavalent Chromium, and EPA Method 314.0 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Sulfate	0.460 mg/L	FB_021214_19

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
FB_021214_19	Sulfate	0.77 mg/L	0.77U mg/L

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No contaminant concentrations were found.

Sample FB\_021214\_19 was identified as a field blank. No contaminant concentrations were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB_021214_19	2/12/14	Sulfate	0.77 mg/L	No associated samples in this SDG



## V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-52081-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52081-1	RD-54A_021214_01 RD-85_021214_01 RD-103(P02)_021214_01 RD-103(QA15)_021214_01 RD-103(QA20)_021214_01 FB_021214_19 RD-23_021214_01 RD-50_021214_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-52081-1	FB_021214_19	Sulfate	0.77U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

LDC #: 31438A6  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 3-13-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JVG

**METHOD:** Fluoride, Nitrate, ~~N~~ Nitrite, Sulfate (EPA Method 300.0), Total Cyanide (EPA SW846 Method 9012A), Hexavalent Chromium (EPA SW846 Method 7196A), Perchlorate (EPA Method 314.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-12-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/Matrix Spike Duplicates	A	MS/MSD
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS / LCSD
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	SW	FB = 6 EB = EB_RD-07-020714*

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SDG: 280-51958-1

Validated Samples:

all water

1	RD-54A_021214_01	11		21		31	
2	RD-85_021214_01	12		22		32	
3	RD-103(P02)_021214_01	13		23		33	
4	RD-103(QA15)_021214_01	14		24		34	
5	RD-103(QA20)_021214_01	15		25		35	
6	FB_021214_19	16		26		36	
7	RD-23_021214_01	17		27		37	
8	RD-50_021214_01	18		28		38	
9	FB_021214_19MS	19		29		39	
10	FB_021214_19MSD	20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





LDC #: 31438A6

# VALIDATION FINDINGS WORKSHEET

## Field Blanks

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: JVL

METHOD: Trace Metals (EPA SW846 6010B/7000)

N  A Were field blanks identified in this SDG?

N  A Were target analytes detected in the field blanks?

Blank units: mg/L Associated sample units: mg/L

Sampling date: 2/12/14 Soil factor applied NA

Field blank type: (circle one) Field Blank Rinsate / Other: \_\_\_\_\_ Associated Samples: none

Analyte	Blank ID	Sample Identification									
	6	Action Level	No Qual.								
SO4	0.77	3.85									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 13, 2014

**LDC Report Date:** April 8, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52127-1

**Sample Identification**

RD-19\_021314\_01  
RD-91\_021314\_01  
RD-63\_021314\_01  
PZ-109\_021314\_01A  
PZ-108\_021314\_01  
PZ-122\_021314\_01

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Fluoride and Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Concentration	Associated Samples
PB (prep blank)	Fluoride	0.0647 mg/L	PZ-108_021314_01

Sample concentrations were compared to concentrations detected in the blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated blanks.

Samples EB\_RD-07\_020714 (from SDG 280-51958-1) and EB\_RD-109\_021014 (from SDG 280-51987-1) were identified as equipment blanks. No contaminant concentrations were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No contaminant concentrations were found.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG280-52127-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-52127-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-52127-1	RD-19_021314_01 RD-91_021314_01 RD-63_021314_01 PZ-109_021314_01A PZ-108_021314_01 PZ-122_021314_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-52127-1**

No Sample Data Qualified in this SDG

LDC #: 31438B6  
 SDG #: 280-52127-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 3-13-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: JL

**METHOD:** Fluoride, Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-13-14</u>
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	SW	
V	Matrix Spike/Matrix Spike Duplicates	N	<u>client specified</u>
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	ND	<u>FB = FB_021214_19 (SDG: 280-52081-1)</u>

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

EB = EB-RD-07-020714 (SDG: 280-51958-1)

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

EB = EB-RD-109-021014 (SDG: 280-51987-1)

Validated Samples:  
all water

1	RD-19_021314_01	11		21		31	
2	RD-91_021314_01	12		22		32	
3	RD-63_021314_01	13		23		33	
4	PZ-109_021314_01A	14		24		34	
5	PZ-108_021314_01	15		25		35	
6	PZ-122_021314_01	16		26		36	
7		17		27		37	
8		18		28		38	
9		19	1 PBW 1	29		39	
10		20	2 PBW 2	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



LDC #: 31438B6

# VALIDATION FINDINGS WORKSHEET

## Blanks

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: JVG

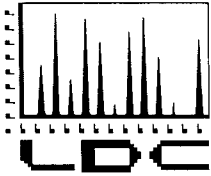
METHOD: Inorganics, Method 300.0

Conc. units: mg/L

Associated Samples: 5 (>5X)

Analyte	Blank ID	Blank ID	Blank Action Limit											
	PB	ICB/CCB (mg/L)		No Qual.										
F	0.0647		0.324											

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 10, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31598:

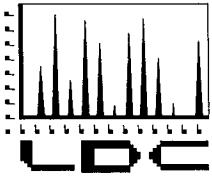
### Former LDC# SDG#

### Fraction

31463A_14A122	Nitrite, Total Petroleum Hydrocarbons as Gasoline,
31437A_14B059	Metals, Volatiles, Semivolatiles, Fluoride, Total
31345A_280-51416-1	Petroleum Hydrocarbons as Extractables,
31345B_280-51465-1	Chlorinated Pesticides, Metals, Herbicides,
31361A_280-51492-1	Dioxins/Dibenzofurans, Total Petroleum
31345D_280-51539-1	Hydrocarbons as Gasoline, Perchlorate
31345E_280-51586-1	
31361D_280-51632-1	
31380A_280-51669-1	
31380B_280-51716-1	
31380C_280-51766-1	
31380D_280-51797-1	
31380F_280-51854-1	
31380G_280-51855-1/H4B100402	
31419A_280-51905-1	
31419B_280-51958-1	
31419C_280-51987-1	
31419E_280-52029-1	
31438A_280-52081-1	
31438B_280-52127-1	

The data validation was performed under EPA Level IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 24, 2014

**LDC Report Date:** April 7, 2014

**Matrix:** Water

**Parameters:** Nitrite

**Validation Level:** Level IV

**Laboratory:** EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 14A122

**Sample Identification**

RD-100\_012414\_03A

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were EPA Method 300.0 for Nitrite.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Continuing Calibration**

Continuing calibration frequency and analysis criteria were met.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No nitrite contaminants were found in the initial, continuing and preparation blanks.

Sample EB\_RD-100\_012414 (from SDG 280-51492-1) was identified as an equipment blank. No nitrite contaminants were found.

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No nitrite contaminants were found.

## **V. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VI. Duplicates**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 14A122	All analytes reported below the RL and above the MDL.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

Samples RD-100\_012414\_03A and RD-100\_012414\_01A (from SDG 280-51492-1) were identified as split samples. No nitrite was detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Nitrite - Data Qualification Summary - SDG 14A122**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
14A122	RD-100_012414_03A	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Nitrite - Laboratory Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Nitrite - Field Blank Data Qualification Summary - SDG 14A122**

No Sample Data Qualified in this SDG

LDC #: 31598A6

## VALIDATION COMPLETENESS WORKSHEET

Date: 4-4-14

SDG #: 14A122

Level IV

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: MG

MS

2nd Reviewer: [Signature]

METHOD: Nitrite ~~X~~ (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1-24-14
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	client specified
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	(SDG: 280-51492-1) 5
X.	Field duplicates	ND	split = 1 + RD-100_012414_01A
XI.	Field blanks	ND	EB = EB-RD-100_012414 (SDG 280-51492-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

FB = FB-021214-19 (SDG 280-52081-1)

Validated Samples:

water

1	RD-100_012414_03A	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Method: Inorganics (EPA Method 300.0)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil (Water)		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.			✓	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	



VALIDATION FINDINGS CHECKLIST

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.		✓		
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.		✓		

LDC #: 31598A6

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Inorganics, Method 300.0

The correlation coefficient (r) for the calibration of NO<sub>2</sub>-N was recalculated. Calibration date: 11-4-13

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$   
 Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte	Standard ID	Conc Found (units)	Area True (units)	Recalculated	Reported	Acceptable (Y/N)
					r or %R	r or %R	
Initial calibration	NO <sub>2</sub> -N	Blank	-	-	r <sup>2</sup> = 0.9993	not reported	Y ↓
		Standard 1	10 (mg/L)	0.004908			
		Standard 2	20 ( )	0.009822			
		Standard 3	40 ( )	0.020060			
		Standard 4	50 ( )	0.025310			
		Standard 5	100 ( )	0.051248			
		Standard 6	250 ( )	0.137690			
		Standard 7	500 ( )	0.290154			
Calibration verification	NO <sub>2</sub> -N	1504 CCV42	0.1018 (mg/L)	0.100 (mg/L)	101.8	101.8	↓
Calibration verification	-	-	-	-	-	-	-
Calibration verification	-	-	-	-	-	-	-

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31598A6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: \_\_\_\_\_

**METHOD:** Inorganics, Method 300.0

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where,      Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$       Where,      S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
<u>1216</u> <u>LCS</u>	Laboratory control sample	<u>NO<sub>2</sub></u>	<u>0.330 (mg/L)</u>	<u>0.329 (mg/L)</u>	<u>100</u>	<u>101</u>	<u>Y</u>
<u>—</u>	Matrix spike sample	<u>—</u>	(SSR-SR) <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	Duplicate sample	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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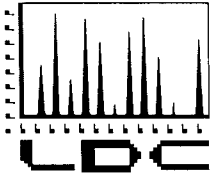


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# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 10, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 3, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31598:

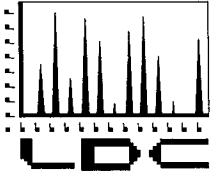
### Former LDC# SDG#

### Fraction

31463A_14A122	Nitrite, Total Petroleum Hydrocarbons as Gasoline,
31437A_14B059	Metals, Volatiles, Semivolatiles, Fluoride, Total
31345A_280-51416-1	Petroleum Hydrocarbons as Extractables,
31345B_280-51465-1	Chlorinated Pesticides, Metals, Herbicides,
31361A_280-51492-1	Dioxins/Dibenzofurans, Total Petroleum
31345D_280-51539-1	Hydrocarbons as Gasoline, Perchlorate
31345E_280-51586-1	
31361D_280-51632-1	
31380A_280-51669-1	
31380B_280-51716-1	
31380C_280-51766-1	
31380D_280-51797-1	
31380F_280-51854-1	
31380G_280-51855-1/H4B100402	
31419A_280-51905-1	
31419B_280-51958-1	
31419C_280-51987-1	
31419E_280-52029-1	
31438A_280-52081-1	
31438B_280-52127-1	

The data validation was performed under EPA Level IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010



- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 7, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Gasoline  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc.  
**Sample Delivery Group (SDG):** 14B059

**Sample Identification**

PZ-105\_021114\_03



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons as Gasoline.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

## III. Continuing Calibration

Continuing calibration was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB\_PZ-105\_021114A was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/7/14	TPH as gasoline (C6-C12)	17 ug/L	All samples in SDG 14B059

Sample FB\_021214\_19 (from SDG 280-52081-1) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

## V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Target Compound Identification

All target compound identifications were within validation criteria.

## IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 14B059	All compounds reported below the RL.	J (all detects)	A

## X. System Performance

The system performance was acceptable.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

Samples PZ-105\_021114\_03 and PZ-105\_021114\_01 (from SDG 280-52029-1) were identified as split samples. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG  
 14B059**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
14B059	PZ-105_021114_03	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification  
 Summary - SDG 14B059**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification  
 Summary - SDG 14B059**

No Sample Data Qualified in this SDG

LDC #: 31598B7

**VALIDATION COMPLETENESS WORKSHEET**

Date: 4/03/14

SDG #: 14B059

Level IV

Page: 1 of 1

Laboratory: EMAX Laboratories, Inc.

Reviewer: JIG

2nd Reviewer: [Signature]

**METHOD:** TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/11/14
II.	Initial calibration	A	?% RSD < 20%
III.	Calibration verification/ICV	A	CCW/ICV < 20%
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates / Split	ND	S = 1 + PZ-105_021114_01 (280-52029-1)
XIII.	Field blanks	SW	* TB = TB-PZ-105_021114 A (same SDG) EB = EB-RD-07-020714 (280-51958-1) FB = FB-021214_19 (280-52081-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

\* ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	PZ-105_021114_03	11	MBLKW	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Method: GC HPLC

Validation Area	Yes	No	NA	Findings/Comments
<b>III. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
What type of continuing calibration calculation was performed? ___%D or ___%R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) < 20% or percent recoveries 80-120%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	


Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.		/		
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.	/			





LDC #: 31598B7

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 

METHOD: GC  HPLC

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

$$CF = A/C$$

average CF = sum of the CF/number of standards

$$\%RSD = 100 * (S/X)$$

Where:

A = Area of compound

C = Concentration of compound

S = Standard deviation of calibration factors

X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported (CF 500 std)	Recalculated (CF 500 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GCT39	1/3/2014	Gasoline (C6-C12)	29193.0	29193.2	26585.6	26585.7	7.5	7.5

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

METHOD: GC  HPLC

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) =  $100 * (N - C) / N$

Where:  
 N = Initial Calibration Factor or Nominal Amount  
 C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	EB13003A	2/13/2014	Gasoline (C6-C12)	500	476.93	476.93	5	5

LDC #: 31598 B7

## VALIDATION FINDINGS WORKSHEET Surrogate Results Verification

Page: 1 of 1

Reviewer: JVG  
2nd reviewer: A

METHOD: GC HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
B	DB-5	40.0	35.7	88.0	88.0	0

Sample ID: \_\_\_\_\_

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene	Z	2-Bromonaphthalene
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Triphenyltin	AA	1-Chlorooctadecane
D	Bromochlorobenzene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin	BB	2,4-DCPA
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

LDC #: 31598 PJ

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

METHOD: GC HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 \* (SSC/SA)

RPD = (((SSCLCS - SSCLCSD) \* 2) / (SSCLCS + SSCLCSD)) \* 100

Where SSC = Spiked sample concentration

LCS = Laboratory Control Sample

SA = Spike added

LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS/D 1W

Compound	Spike Added (ug/L)		Spike Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	500	500	456	441	91	91	88	88	3	3
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31598 B7

### VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC HPLC

Y N N/A  
Y N N/A

Were all reported results recalculated and verified for all level IV samples?  
Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration =  $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

Example:

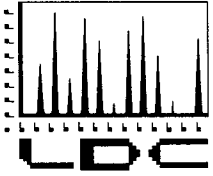
Sample ID: ND Compound Name \_\_\_\_\_  
CS - (C<sub>0</sub> - C<sub>r</sub>)

Concentration =  $\frac{(12132720)}{(26585.6)}$  = 456.36 ug/L

- A= Area or height of the compound to be measured
- Fv= Final Volume of extract
- Df= Dilution Factor
- RF= Average response factor of the compound  
In the initial calibration
- Vs= Initial volume of the sample
- Ws= Initial weight of the sample
- %S= Percent Solid

#	Sample ID	Compound	Reported Concentrations ( <u>ug/L</u> )	Recalculated Results Concentrations ( )	Qualifications
			<u>456</u>		

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31612:

#### Former LDC# SDG#

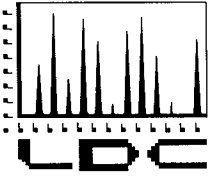
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

#### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31612 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	FORMER LDC#	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625)		DRO (8015B)		Dioxins (8290)		Formaldehyde (8315A)		ClO <sub>4</sub> (6860)		NO <sub>3</sub> -N (300.0)		ClO <sub>4</sub> (314.0)		S= (4500 S2 D)		D.Gross α (900.0)		Tritium (906.0)		Sr-90 (905.0)							
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
B	31307A	280-51368-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	31345A	280-51416-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	31345B	280-51465-1	04/07/14	04/14/14	-	-	-	-	1	0	1	0	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E	31345D	280-51539-1	04/07/14	04/14/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	
F	31361D	280-51632-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	
G	31361E	280-51633-1 /H4B030412	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
H	31361F	280-51670-1 /H4B030402	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J	31361G	280-51767-1 /H4B060406	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K	31380D	280-51797-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
L	31419B	280-51958-1	04/07/14	04/14/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
M	NA	280-51959-2	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	
N	31547D	280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02065-OR/ 14-02068-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0
O	31438A	280-52081-1	04/07/14	04/14/14	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	31547E	280-52126-1/ 14-02066-OR/ 14-02067-OR/ 14-02069-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0
Total		T/PG			3	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	3	0	2	0	3	0	1	0	0	0	31			

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** Nitrate

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-48B\_012114\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
RD-48B_012114_01	Nitrate as N	57.50 hours	48 hours	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No nitrate was found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51368-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

### **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51368-1	RD-48B_012114_01	Nitrate as N	J (all detects) UJ (all non-detects)	A	Technical holding time (H)
280-51368-1	RD-48B_012114_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31612B6  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4-9-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: *[Signature]*

**METHOD:** Nitrate (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 1-21-14
II	Initial calibration	A ✓	
III.	Calibration verification	A ✓	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	client specified
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	A ✓	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 Water

1	RD-48B_012114_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method 300.0)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil (Water.)		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.			✓	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	





LDC #: 3161236

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of NO<sub>3</sub>-N was recalculated. Calibration date: 1-14-14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc (ug/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	NO <sub>3</sub> -N	s1	0.2	5941360	0.9999	not reported	Y ↓
		s2	0.5	15547038			
		s3	1	33180913			
		s4	4	139967689			
		s5	8	284386031			
		s6	10	358937269			
Calibration verification	NO <sub>3</sub> -N	<u>1304 CCV</u>	<u>4.83 (mg/L)</u>	<u>5.0 (mg/L)</u>	<u>97</u>	<u>96</u>	↓
Calibration verification	—	—	—	—	—	—	—
Calibration verification	—	—	—	—	—	—	—

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31612B6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Inorganics, Method 300.0

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
 D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
<del>0952</del> LCS	Laboratory control sample	NO <sub>3</sub>	20.50 (mg/L)	22.1 (mg/L)	93	93	Y
—	Matrix spike sample	—	(SSR-SR)	—	—	—	—
—	Duplicate sample	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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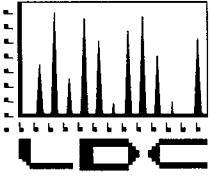


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## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31612:

#### Former LDC# SDG#

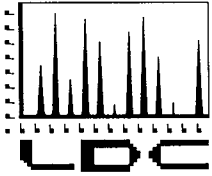
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

#### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 22, 2014  
**LDC Report Date:** April 9, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51416-1

**Sample Identification**

RD-75\_012214\_01



## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than 20.0%.

## **III. Continuing Calibration**

Continuing calibration was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. Surrogate recoveries (%R) were not within QC limits for sample RD-23\_021214\_01. Since the sample was diluted greater than 5X, no data were qualified.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

All target compound identifications were within validation criteria.

## IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51416-1	All compounds reported below the RL.	J (all detects)	A

## X. System Performance

The system performance was acceptable.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-51416-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51416-1	RD-75_012214_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-51416-1**

No Sample Data Qualified in this SDG

LDC #: 31612C8  
 SDG #: 280-51416-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/08/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1/22/14</u>
II.	Initial calibration	A	<u>% RSD ≤ 20%</u>
III.	Calibration verification/ICV	A	<u>CCV / CV ≤ 20%</u>
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	<u>CS</u>
VII.	Laboratory control samples	A	<u>ICS 'D</u>
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	RD-75_012214_01	11	<u>MB 280-209805/1-B</u>	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: GC HPLC

Validation Area	Yes	No	NA	Findings/Comments
<b>III. Technical Holding Times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Initial Calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Continuing Calibration</b>				
What type of continuing calibration calculation was performed? <u>  </u> %D or %R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) < 20% or percent recoveries 80-120%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VIII. Matrix spike/matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>IX. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**VALIDATION FINDINGS CHECKLIST**

Validation Area	Yes	No	NA	Findings/Comments
<b>XI Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>XII Retention Time Identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XIII Compound Quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIV System Performance</b>				
System performance was found to be acceptable.	/			
<b>XV Overall Assessment of Data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI Field Duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII Field Blanks</b>				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	





LDC #: 31612C8

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC   /   HPLC       

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

Where:  
CF =  $A/C$   
average CF = sum of the CF/number of standards  
%RSD =  $100 * (S/X)$   
A = Area of compound  
C = Concentration of compound  
S = Standard deviation of calibration factors  
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (150 std)	Recalculated CF (150 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL SGC U2A	7/16/2013	C8-C11	170000.00	169999.7	179276.15	172335.50	3.3	3.3

LDC # 31612C8

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: GC  HPLC

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Where:

$$\text{Percent difference (\%D)} = 100 * (N - C)/N$$

N = Initial Calibration Factor or Nominal Amount

C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated % D
1	01280004	1/28/2014	C8-C11	100	97.96	97.96	2.0	2.0

LDC #: 3/6/2008

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: [Signature]

METHOD: GC HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
H	RTX-1	50	47.8	96	96	0

Sample ID: \_\_\_\_\_

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Surrogate Compound	Surrogate Compound	Surrogate Compound	Surrogate Compound	Surrogate Compound
A Chlorobenzene (CBZ) G	Octacosane M	Benzo(e)Pyrene S	1-Chloro-3-Nitrobenzene Y	Tetrachloro-m- xylene
B 4-Bromofluorobenzene (BFB) H	Ortho-Terphenyl N	Terphenyl-D14 T	3,4-Dinitrotoluene Z	2-Bromonaphthalene
C a,a,a-Trifluorotoluene I	Fluorobenzene (FBZ) O	Decachlorobiphenyl (DCB) U	Tripentyltin AA	1-Chlorooctadecane
D Bromochlorobenene J	n-Triacontane P	1-methylnaphthalene V	Tri-n-propyltin BB	2,4-DCPA
E 1,4-Dichlorobutane K	Hexacosane Q	Dichlorophenyl Acetic Acid (DCAA) W	Tributyl Phosphate	
F 1,4-Difluorobenzene (DFB) L	Bromobenzene R	4-Nitrophenol X	Triphenyl Phosphate	

LDC #: 31612 Cg

## VALIDATION FINDINGS WORKSHEET

### Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: JVG

2nd Reviewer: [Signature]

METHOD: GC HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

$\% \text{Recovery} = 100 * (\text{SSC}/\text{SA})$

$\text{RPD} = \frac{((\text{SSCLCS} - \text{SSCLCSD}) * 2)}{(\text{SSCLCS} + \text{SSCLCSD})} * 100$

Where SSC = Spiked sample concentration

LCS = Laboratory Control Sample

SA = Spike added

LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS 10 280-209 805 / 2 3-B

Compound	Spike Added (ug/L)		Spike Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD		
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD		
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.	
Gasoline (8015)											
Diesel-C <sub>30</sub> (8015)	3.75	3.75	3.55	3.67	95	95	98	98	3	3	
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
Phorate (8141A)											
Malathion (8141A)											
Formaldehyde (8315A)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31612C8

### VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: 1 of 1  
Reviewer: AVG  
2nd Reviewer: [Signature]

METHOD: GC HPLC

Y N N/A  
Y N N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration =  $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

Example:

Sample ID: MD Compound Name \_\_\_\_\_  
CS - C<sub>8</sub> - C<sub>11</sub>

Concentration =  $\frac{(41864715) (1 \text{ ml})}{(172335.5) (1000 \text{ ml})} = 0.2429$   
2 0.243 mg

A= Area or height of the compound to be measured

Fv= Final Volume of extract

Df= Dilution Factor

RF= Average response factor of the compound  
In the initial calibration

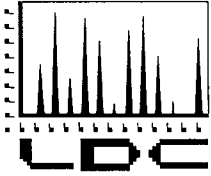
Vs= Initial volume of the sample

Ws= Initial weight of the sample

%S= Percent Solid

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications
			0.243		

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

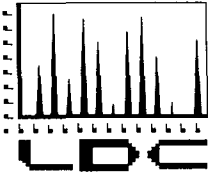
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** April 9, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

**Sample Identification**

RD-43C\_012314\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

Average relative response factors (RRF) for all compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

**VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

**VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

**IX. Regional Quality Assurance and Quality Control**

Not applicable.

**X. Internal Standards**

All internal standard areas and retention times were within QC limits.

**XI. Target Compound Identifications**

All target compound identifications were within validation criteria.

**XII. Compound Quantitation**

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

**XIII. System Performance**

The system performance was acceptable.

**XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

**XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-43C_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31612D2a  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/08/14  
 Page: 1 of 1  
 Reviewer: *JG*  
 2nd Reviewer: *JG*

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	? RSD $\leq$ 30/15?
IV.	Continuing calibration/ICV	A	CV/1W $\leq$ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	CS D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

*Water*

1	RD-43C_012314_01	11	MB 280-210552/1-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

*Phthalates + NB  
 (no re)*

Method: Semivolatiles (EPA SW 846 Method 8270C)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?		/		
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?			/	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) > 0.05?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds from the associated calibration standard?	/			
<b>XI. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XII. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	



**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS SVOA (EPA SW 846 Method 8270C)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound,

S= Standard deviation of the RRFs,

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF ( 50 std)	Recalculated RRF ( 50 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	1/2/2014	Nitrobenzene (NPT)	0.4357	0.4357	0.4316	0.4316	5.7	5.7
			Diethyl phthalate (ANT)	1.2536	1.2536	1.2441	1.2442	6.9	6.9
			Di-n-butyl phthalate (PHN)	1.2370	1.2370	1.1924	1.1925	6.6	6.6
			Bis(2-eh)phthalate (CRY)	0.6426	0.6426	0.6230	0.6230	4.7	4.73

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

METHOD: GC/MS SVOA (EPA SW 846 Method 8270C)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$$

Where:

ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

A<sub>x</sub> = Area of compound

C<sub>x</sub> = Concentration of compound

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial RRF)	Reported (CC RRF)	Recalculated (CC RRF)	Reported %D	Recalculated %D
1	Y8869	02/03/14	Nitrobenzene (NPT)	0.4316	0.3910	0.3910	9.4	9.4
			Diethyl phthalate (ANT)	1.2441	1.2459	1.2459	0.1	0.1
			Di-n-butyl phthalate (PHN)	1.1924	1.2229	1.2229	2.6	2.6
			Bis(2-eh)phthalate (CRY)	0.6230	0.6660	0.6660	6.9	6.9

LDC #: 31612 D2A

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC/MS Semivolatiles (EPA SW 846 Method 8270C)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	100	81.9	82	82	0
2-Fluorobiphenyl	↓	90.0	90	90	↓
Terphenyl-d14	↓	101.7	102	102	↓
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 31012 D2c

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SC/SA

Where: SSC = Spike concentration  
 SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: LCS 10 280-210532 / 2, 3-A

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
Bis(2-eh)phthalate	80.0	80.0	82.9	85.6	104	104	107	107	3	3
Nitrobenzene	↓	↓	67.2	66.5	84	84	83	83	1	1

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** January 23, 2014  
**LDC Report Date:** April 9, 2014  
**Matrix:** Water  
**Parameters:** Polynuclear Aromatic Hydrocarbons  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-51465-1

**Sample Identification**

RD-32\_012314\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Polynuclear Aromatic Hydrocarbons.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

Retention time windows were evaluated and considered technically acceptable.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/3/14	Indeno(1,2,3-cd)pyrene	21.6	All samples in SDG 280-51465-1	J (all detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polynuclear aromatic hydrocarbon contaminants were found in the method blanks.

No field blanks were identified in this SDG.



## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51465-1	All compounds reported below the RL.	J (all detects)	A

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was acceptable.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XVI. Field Duplicates

No field duplicates were identified in this SDG.

Samples RD-32\_012314\_01 and RD-32\_012314\_36 were identified as split samples. No polynuclear aromatic hydrocarbons were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	RD-32_012314_01	RD-32_012314_36			
Fluoranthene	0.020	0.0043	129 ( $\leq 35$ )	NQ	-
Pyrene	0.049	0.0077	146 ( $\leq 35$ )	NQ	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
 Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51465-1	RD-32_012314_01	Indeno(1,2,3-cd)pyrene	J (all detects) UJ (all non-detects)	A	Continuing calibration (ICV %D) (C)
280-51465-1	RD-32_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31612D2b  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/08/14  
 Page: 1 of 1  
 Reviewer: JYB  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS <sup>PAH</sup> Semivolatiles (EPA SW846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD ≤ 30/15%
IV.	Continuing calibration/ICV	SW	CV/IV ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS (D)
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 1, RD-32-012314-36 (same SDG)
XVII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

water

1	RD-32_012314_01	11	MB 280-210291 / -A	21		31
2		12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6		16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

(no r<sup>2</sup>)

Method: PAH (EPA SW 846 Method 8270C-SIM)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $> 0.05$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds from the associated calibration standard?	/			
<b>XI. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XII. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.	/			
<b>XVII. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	

## VALIDATION FINDINGS WORKSHEET

**METHOD:** GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.





**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** GC/MS PAH (EPA SW 846 Method 8270C-SIM)

N N/A  
 N N/A

Were field duplicate pairs identified in this SDG?  
Were target compounds identified in the field duplicate pairs?

Compound	Concentration ( $\mu\text{g/L}$ )		RPD ( $\leq 35$ %)	Qualifications (Parent only)
	1	RD-32-012314-36		
YY	0.020	0.0043	129	NA (← SX RL) ↓
ZZ	0.049	0.0077	146	

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

Compound	Concentration ( )		RPD ( $\leq$ %)	Qualifications (Parent only)

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS PAH (EPA SW 846 Method 8270C-SIM)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

A<sub>x</sub> = Area of Compound

C<sub>x</sub> = Concentration of compound,

S = Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (600 std)	Recalculated RRF (600 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL SMS F	2/3/14	Naphthalene (ANT)	1.7260	1.7260	1.7965	1.7965	6.3	6.3
			Pyrene (PHN)	1.3179	1.3179	1.3550	1.3550	6.8	6.8
			Benzo(a)pyrene (CRY)	0.5456	0.5456	0.5778	0.5778	14	14

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

METHOD: GC/MS PAH (EPA SW 846 Method 8270C-SIM)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

Where:

ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound

Cx = Concentration of compound  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound	Ave RRF	Reported RRF	Recalculated RRF	Reported % D	Recalculated %D
1	F4031 ICV	2/3/2014	Naphthalene (ANT)	1.7965	1.5458	1.5458	14.0	14.0
			Pyrene (PHN)	1.3550	1.2310	1.2310	9.1	9.1
			Benzo(a)pyrene (CRY)	0.5778	0.5329	0.5329	7.8	7.8

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC/MS PAH (EPA SW 846 Method 8270C-SIM)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	500	387.3	77	77	0
2-Fluorobiphenyl		387.1	77	77	
Terphenyl-d14		471.6	94	94	

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

LDC #: 31612 D2b

## VALIDATION FINDINGS WORKSHEET

### Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1

Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS PAH (EPA SW 846 Method 8270C-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SC/SA)$

Where: SSC = Spike concentration  
 SA = Spike added

RPD =  $|LCSC - LCSDC| * 2 / (LCSC + LCSDC)$

LCSC = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: LCS/D 280-210291/2, 3-A

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Acenaphthene	0.900	0.900	0.785	0.764	87	87	85	85	3	3
Pyrene	↓	↓	0.876	0.826	93	93	92	92	1	1

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 3rd Qtr 2013

**Collection Date:** January 23, 2014

**LDC Report Date:** April 9, 2014

**Matrix:** Water

**Parameters:** Formaldehyde

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

**Sample Identification**

RD-43C\_012314\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8315A for Formaldehyde.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for all compounds were less than or equal to 20.0%.

## **III. Continuing Calibration**

Continuing calibration was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No formaldehyde was found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were not required by the method.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Target Compound Identification**

All target compound identifications were within validation criteria.

## IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51465-1	All compounds reported below the RL.	J (all detects)	A

## X. System Performance

The system performance was acceptable.

## XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 3rd Qtr 2013  
Formaldehyde - Data Qualification Summary - SDG 280-51465-1**

<b>SDG</b>	<b>Sample</b>	<b>Compound</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51465-1	RD-43C_012314_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 3rd Qtr 2013  
Formaldehyde - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 3rd Qtr 2013  
Formaldehyde - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

LDC #: 31612D71  
 SDG #: 280-51465-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/08/14  
 Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** HPLC Formaldehyde (EPA SW846 Method 8315A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II	Initial calibration	A	% RSD ≤ 20%
III.	Calibration verification/ICV	A	CW/100 ≤ 20%
IV.	Blanks	A	
V	Surrogate recovery	N	Not req'd.
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	A	
IX.	Compound Quantitation RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

Water							
1	RD-43C_012314_01	11	MB 240-117688/12-A	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: GC / HPLC

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical Holding Times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. Initial Calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	/			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		/		
Did the initial calibration meet the curve fit acceptance criteria?			/	
Were the RT windows properly established?	/			
<b>III. Continuing Calibration</b>				
What type of continuing calibration calculation was performed? <u>/</u> %D or %R	/			
Was a continuing calibration analyzed daily?	/			
Were all percent differences (%D) < 20% or percent recoveries 80-120%?	/			
Were all the retention times within the acceptance windows?	/			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>V. Surrogate Spikes</b>				
Were all surrogate %R within the QC limits?			/	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VI. Matrix Spikes/Matrix Spike Duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VII. Laboratory Control Samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

LDC #: 31612 D71


**VALIDATION FINDINGS CHECKLIST**

Page: 2 of 2  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
<b>X. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>XI. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XII. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVI. Field blanks</b>				
Field blanks were identified in this SDG.		/	/	
Target compounds were detected in the field blanks.			/	

LDC #: 31612D71

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 

METHOD: GC \_\_\_\_\_ HPLC   /  

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

$CF = A/C$

average CF = sum of the CF/number of standards

$\%RSD = 100 * (S/X)$

Where:

A = Area of compound

C = Concentration of compound


S = Standard deviation of calibration factors

X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (10.0 std)	Recalculated CF (10.0 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL A2HPL2	4/18/2013	Formaldehyde	301326	301326	298251	298251	2.7	2.7

LDC # 31612D71

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 

METHOD: GC \_\_\_\_\_ HPLC   /  

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

$$\text{Percent difference (\%D)} = 100 * (N - C)/N$$

Where:

N = Initial Calibration Factor or Nominal Amount

C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	L1012705	1/27/2014	Formaldehyde	2.00	2.05	2.05	2.3	2.3



LDC #: 31612571

## VALIDATION FINDINGS WORKSHEET

### Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: JVG  
 2nd Reviewer: [Signature]

METHOD: GC / HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

$$\% \text{Recovery} = 100 * (\text{SSC}/\text{SA})$$

$$\text{RPD} = ((\text{SSCLCS} - \text{SSCLCSD}) / 2) / ((\text{SSCLCS} + \text{SSCLCSD}) / 2) * 100$$

Where SSC = Spiked sample concentration  
 LCS = Laboratory Control Sample

SA = Spike added  
 LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS 240-117688 / 13-A

Compound	Spike Added (ug/L)		Spike Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD		
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD		
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.	
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
Phorate (8141A)											
Malathion (8141A)											
Formaldehyde (8315A)	200	NA	148	NA	74	74					

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31612 D7

### VALIDATION FINDINGS WORKSHEET Sample Calculation Verification

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: [Signature]

METHOD: / GC  HPLC

Y N N/A  
Y N N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration =  $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

Example:

Sample ID. 1 Compound Name Formaldehyde

- A= Area or height of the compound to be measured
- Fv= Final Volume of extract
- Df= Dilution Factor
- RF= Average response factor of the compound  
In the initial calibration
- Vs= Initial volume of the sample
- Ws= Initial weight of the sample
- %S= Percent Solid

Concentration =  $\frac{(590.96) (5 \text{ ml}) (1000)}{(298251.175) (100 \text{ ml})} = 9.9 \text{ ug/L}$

#	Sample ID	Compound	Reported Concentrations ( <u>ug/L</u> )	Recalculated Results Concentrations ( )	Qualifications
			9.9		

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 23, 2014

**LDC Report Date:** April 9, 2014

**Matrix:** Water

**Parameters:** Perchlorate

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51465-1

**Sample Identification**

RD-43C\_012314\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6860 for Perchlorate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. LC/MS Instrument Performance Check**

Instrument performance check is not required by the method.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 15.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

The percent differences (%D) of the limit of detection verification (LODV) standard were less than or equal to 30.0% for all compounds.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## **VII. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

### **VIII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### **IX. Regional Quality Assurance and Quality Control**

Not applicable.

### **X. Internal Standards**

All internal standard recoveries were within QC limits.

### **XI. Target Compound Identifications**

All target compound identifications were within validation criteria.

### **XII. Compound Quantitation**

All compound quantitations were within validation criteria.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51465-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

### **XIII. System Performance**

Raw data were not reviewed for this SDG.

### **XIV. Overall Assessment**

Data flags are summarized at the end of this report if data has been qualified.

### **XV. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Data Qualification Summary - SDG 280-51465-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51465-1	RD-43C_012314_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Perchlorate - Field Blank Data Qualification Summary - SDG 280-51465-1**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perchlorate (EPA SW846 Method 6860)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/23/14
II.	GC/MS Instrument performance check	N	
III.	Initial calibration	A	rv
IV.	Continuing calibration/ICV	A	CV/ICV ≤ 15% LODV ≤ 30%
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-43C_012314_01	11	IMB 280-21148/	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	



Method: GC / LC/MS

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. LC/MS Instrument performance check</b>				
Were the instrument performance reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) < 20%?		/		
Was a curve fit used for evaluation?	/			
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?	/			
Were the RT windows properly established?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration analyzed daily?	/			
Were all percent differences (%D) < 15%?	/			
Were all the retention times within the acceptance windows?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>XIII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?	/	/		
Were the performance evaluation (PE) samples within the acceptance limits?	/	/		

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within $\pm$ 30 seconds from the associated calibration standard?	/			
<b>X. Target compound identification</b>				
Were relative retention times (RRT's) within $\pm$ 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	
<del>Target compounds were detected in the field blanks.</del>				

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Method: LCMS Perchlorate (EPASW 846 Method 6860)

Calibration Date	System	Compound	Standard	(Y) Area*200	(X) Conc
1/30/2014	LCMS1	Perchlorate	1	38.14529	20.00
			2	81.79162	50.00
			3	150.73160	100.00
			4	302.11205	200.00
			5	694.39151	500.00
			6	1373.66534	1000.00

Regression Output	<i>Calculated</i>	<i>Reported WLR</i>
Constant	<i>b =</i> 16.777209	12.366000
R Squared	<i>r2 =</i> 0.999822	0.999000
X Coefficient(s)	<i>m =</i> 1.358382	1.37250
Correlation Coefficient	0.999911	
Coefficient of Determination (r <sup>2</sup> )	0.999822	0.999000

LDC#: 31612D87

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

Method: LCMS Perchlorate (EPASW 846 Method 6860)

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) =  $100 * (N - C)/N$

Where:

N = Initial Calibration Factor or Nominal Amount

C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc	Reported Conc	Recalculated Conc	Reported % D	Recalculated %D
1	IC14B03012	2/3/2014	Perchlorate	0.200	0.190	0.190	4.9	4.9

LDC #: 3162 D87

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** LC/MS Perchlorate (EPA SW 846 Method 6850/6860)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SC/SA)$

Where: SSC = Spike concentration  
 SA = Spike added

RPD =  $|LCS - LCSD| * 2 / (LCS + LCSD)$

LCS = Laboratory control sample percent recovery

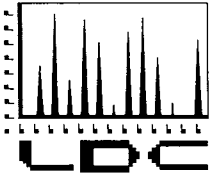
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS 280 - 21118 / 8

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc	Reported	Recalc	Reported	Recalc
Perchlorate	0.0500	NA	0.0501	NA	100	100				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

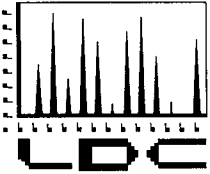
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** April 9, 2014

**Matrix:** Water

**Parameters:** 1,2,3-Trichloropropane

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-08\_012714\_01

RD-08\_012714\_01DUP

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 524.2 using Selected Ion Monitoring (SIM) for 1,2,3-Trichloropropane.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0%.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 30.0%.

The percent differences (%D) of the second source calibration standard were less than or equal to 30.0%.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No 1,2,3-trichloropropane was found in the method blanks.

Sample TB\_RD-08\_012714 was identified as a trip blank. No 1,2,3-trichloropropane was found.

## **VI. Surrogate Spikes**

Surrogates were not required by the method.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51539-1	All compounds reported below the RL.	J (all detects)	A

## XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

## XIV. System Performance

The system performance was acceptable.

## XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51539-1	RD-08_012714_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
1,2,3-Trichloropropane - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31612E1c  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/08/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS 1,2,3-Trichloropropane (EPA Method 524.2-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/27/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD ≤ 20 %
IV.	Continuing calibration/ICV	A	CV/ICV ≤ 30 %
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates / LD	N/A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = TB RD-08-012714 (same SDG)

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-08_012714_01	11	MB 440-159209/3	21	31
2	RD-08_012714_01DUP	12		22	32
3		13		23	33
4		14		24	34
5		15		25	35
6		16		26	36
7		17		27	37
8		18		28	38
9		19		29	39
10		20		30	40



**Method:** Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) < 20%?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) < 30%?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?		/		
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
Were internal standard area counts within +/-40% from the associated calibration standard?	/			
Were retention times within - 30% of the last continuing calibration or +/- 50% of the initial calibration?	/			
<b>XI. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XII. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS 1,2,3-Trichlopropane (EPA Method 524.2)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

$\%RSD = 100 * (S/X)$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound,

S= Standard deviation of the RRFs,

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (50 std)	Recalculated RRF (50 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GCMS 74	7/5/2013	1,2,3-TCP (1,2,3-TCP-d5)	1.1504	1.1504	1.1894	1.1894	3.0	3.0



LDC #: 31612 EIC

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA Method 524.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* SSC/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

RPD = |LCS - LCSD| \* 2 / (LCS + LCSD)

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS ID: LCS 440 - 159209 / 2

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene										
Trichloroethene										
Benzene										
Toluene										
Chlorobenzene										
1,2,3 - TCP	0.0050	NA	0.00535	NA	107	107				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 27, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51539-1

**Sample Identification**

RD-51B\_012714\_01

RD-08\_012714\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 314.0 for Perchlorate and Standard Method 4500 S2 D for Sulfide.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Continuing Calibration**

Continuing calibration frequency and analysis criteria were met.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VI. Duplicates**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51539-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51539-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51539-1	RD-51B_012714_01 RD-08_012714_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51539-1**

No Sample Data Qualified in this SDG

LDC #: 31612E6  
 SDG #: 280-51539-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4-9-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Perchlorate (EPA Method 314.0), Sulfide (SM4500 S2 D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1-27-14</u>
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	A	<u>MS/MSD</u>
VI.	Duplicates	N	
VII.	Laboratory control samples	A	<u>LCS / LCSD</u>
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI	Field blanks	N	

Note: A = Acceptable                      ND = No compounds detected                      D = Duplicate  
 N = Not provided/applicable                      R = Rinsate                      TB = Trip blank  
 SW = See worksheet                      FB = Field blank                      EB = Equipment blank

Validated Samples: all water

1	RD-51B_012714_01	11		21		31	
2	RD-08_012714_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	<u>PBW</u>	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)	✓			
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31612EG

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

Method: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of ClO4 was recalculated. Calibration date: 1-24-14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where,

Found = concentration of each analyte measured in the analysis of the ICV or CCV solution

True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (ug/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	ClO4	s1	1	32541	0.998686	0.999000	Y
		s2	2	62575			
		s3	4	90463			
		s4	10	199363			
		s5	25	810694			
		s6	50	1632458			
		s7	100	3454024			
Calibration verification	ClO4	14:36 CCV	24.4 (mg/L)	25.0 (mg/L)	98	98	
Calibration verification	Sulfide	ICV	0.334 (mg/L)	0.303 (mg/L)	110	110	
Calibration verification	—	—	—	—	—	—	—

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



LDC #: 31612E6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: [Signature]

**METHOD:** Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

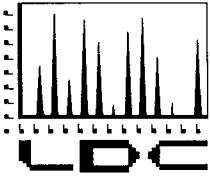
A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	Sulfide	0.563 (mg/L)	0.505 (mg/L)	111	112	Y
RD-5 08 1233 IA_012714-01 MS	Matrix spike sample	ClO <sub>4</sub>	(SSR-SR) 23.6 (μg/L)	25.0 (μg/L)	94	94	↓
—	Duplicate sample	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

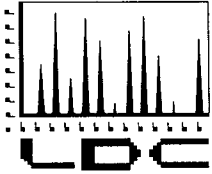
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31612 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	FORMER LDC#	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625)		DRO (8015B)		Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		NO <sub>3</sub> -N (300.0)		CLO <sub>4</sub> (314.0)		S= (4500 S2 D)		D.Gross α (900.0)		Tritium (906.0)		Sr-90 (905.0)							
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																								
B	31307A	280-51368-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	31345A	280-51416-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	31345B	280-51465-1	04/07/14	04/14/14	-	-	-	-	1	0	1	0	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E	31345D	280-51539-1	04/07/14	04/14/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
F	31361D	280-51632-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	
G	31361E	280-51633-1 /H4B030412	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	31361F	280-51670-1 /H4B030402	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J	31361G	280-51767-1 /H4B060406	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K	31380D	280-51797-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
L	31419B	280-51958-1	04/07/14	04/14/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
M	NA	280-51959-2	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-
N	31547D	280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	1	0	-	-	-	-	-	-	-	-	-
O	31438A	280-52081-1	04/07/14	04/14/14	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	31547E	280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-
Total		T/PG			3	0	1	0	1	0	1	0	1	0	1	0	10	0	1	0	1	0	1	0	1	0	3	0	2	0	3	0	1	0	0	0	0	31		

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** Sulfide

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51632-1

**Sample Identification**

RD-11\_012914\_01

RD-11\_012914\_36

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Standard Method 4500 S2 D for Sulfide.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Continuing Calibration**

Continuing calibration frequency and analysis criteria were met.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No sulfide was found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## **VI. Duplicates**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:



Sample	Analyte	Flag	A or P
All samples in SDG 280-51632-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No contaminant concentrations were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/L)		RPD (Limits)	Flag	A or P
	RD-11_012914_01	RD-11_012914_36			
Sulfide	0.042	0.037	13 ( $\leq 35$ )	-	-

**Boeing SSFL GW 1st Qtr 2014  
Sulfide - Data Qualification Summary - SDG 280-51632-1**

<b>SDG</b>	<b>Sample</b>	<b>Analyte</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-51632-1	RD-11_012914_01 RD-11_012914_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Sulfide - Laboratory Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Sulfide - Field Blank Data Qualification Summary - SDG 280-51632-1**

No Sample Data Qualified in this SDG

LDC #: 31612F6  
 SDG #: 280-51632-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4-9-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Sulfide (SM4500 S2 D)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>1-29-14</u>
II	Initial calibration	A ✓	
III.	Calibration verification	A ✓	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	<u>client specified</u>
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	A ✓	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	<u>D = 1+2</u>
XI	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	RD-11_012914_01	11		21		31	
2	RD-11_012914_36	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	<u>PBW</u>	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method SM 4500 S<sub>2</sub> D)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)	✓			
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.			✓	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (SM4500 S2 D)

Analyte	Concentration (mg/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	1	2		
Sulfide	0.042	0.037	13	

LDC #: 31612 F6

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: d

**METHOD:** Inorganics, Method SM 4500 S2 D

The correlation coefficient (r) for the calibration of Sulfide was recalculated. Calibration date: 1-21-14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte	Standard ID	Conc Found (units)	Resp. True (units)	Recalculated	Reported	Acceptable (Y/N)
					r or %R	r or %R	
Initial calibration	Sulfide	Blank	0.0 (mg/L)	0.0	r <sup>2</sup> = 0.998	r <sup>2</sup> = 0.998	Y ↓
		Standard 1	0.046 ( )	0.057			
		Standard 2	0.092 ( )	0.117			
		Standard 3	0.229 ( )	0.276			
		Standard 4	0.459 ( )	0.478			
		Standard 5	0.919 ( ↓ )	0.96			
		Standard 6	-	-			
		Standard 7	-	-			
Calibration verification	Sulfide	ICV	0.325 (mg/L)	0.303 (mg/L)	107	107	↓
Calibration verification	-	-	-	-	-	-	-
Calibration verification	-	-	-	-	-	-	-

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31612F6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: A

**METHOD:** Inorganics, Method SM 4500 S2 D

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$     Where,    Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$     Where,    S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	Sulfide	0.475 (mg/L)	0.505 (mg/L)	94	94	Y
—	Matrix spike sample	—	(SSR-SR)	—	—	—	—
—	Duplicate sample	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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LDC #: 31612F6

**VALIDATION FINDINGS WORKSHEET**  
Sample Calculation Verification

Page: 1 of 1  
Reviewer: MG  
2nd reviewer: ✓

**METHOD:** Inorganics, Method SM4500 S2 D

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments?
- N N/A Are all detection limits below the CRQL?

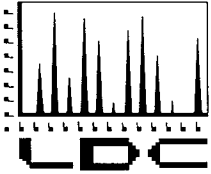
Compound (analyte) results for sulfide reported with a positive detect were recalculated and verified using the following equation:

Concentration =  
 $\text{Area}(1.055) - 0.015246$

Recalculation:  
 $0.055(1.055) - 0.015246 = 0.0428 \text{ mg/L}$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	1	Sulfide	0.042	0.042	Y
2	2	Sulfide	0.037	0.038	↓

Note: \_\_\_\_\_



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

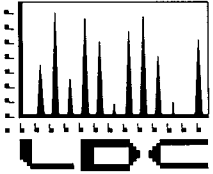
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31612 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	FORMER LDC#	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625)		DRO (8015B)		Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		NO <sub>3</sub> -N (300.0)		CLO <sub>4</sub> (314.0)		S= (4500 S2 D)		D.Gross α (900.0)		Tritium (906.0)		Sr-90 (905.0)					
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																						
B	31307A	280-51368-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
C	31345A	280-51416-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	31345B	280-51465-1	04/07/14	04/14/14	-	-	-	-	1	0	1	0	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E	31345D	280-51539-1	04/07/14	04/14/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	
F	31361D	280-51632-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	
G	31361E	280-51633-1 /H4B030412	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	31361F	280-51670-1 /H4B030402	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J	31361G	280-51767-1 /H4B060406	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K	31380D	280-51797-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
L	31419B	280-51958-1	04/07/14	04/14/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
M	NA	280-51959-2	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-
N	31547D	280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	1	0	-	-	-	-	-	-	-
O	31438A	280-52081-1	04/07/14	04/14/14	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	31547E	280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-
Total		T/PG			3	0	1	0	1	0	1	0	1	0	1	0	10	0	1	0	1	0	1	0	1	0	3	0	2	0	3	0	1	0	0	0	31	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 29, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51633-1/H4B030412

**Sample Identification**

RD-11\_012914\_01  
HAR-16\_012914\_01  
RD-78\_012914\_01

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. HRGC/HRMS Instrument Performance Check**

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

The exact mass of 380.9760 of PFK was verified.

The static resolving power was at least 10,000 (10% valley definition).

## **III. Initial Calibration**

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio for each target compound was greater than or equal to 2.5 and greater than or equal to 10 for each recovery and internal standard compound.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No polychlorinated

dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4036029MB	2/5/14	OCDD	4.2 pg/L	All samples in SDG 280-51633-1/H4B030412

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
HAR-16_012914_01	OCDD	2.8 pg/L	2.8U pg/L
RD-78_012914_01	OCDD	3.7 pg/L	3.7U pg/L

No field blanks were identified in this SDG.

#### VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

#### VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### VIII. Regional Quality Assurance and Quality Control

Not applicable.

#### IX. Internal Standards

All internal standard recoveries (%R) were within QC limits.

#### X. Target Compound Identifications

All target compound identifications were within validation criteria.



## XI. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51633-1/H4B030412	All compounds reported below the RL.	J (all detects)	A

## XII. System Performance

The system performance was acceptable.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

Samples RD-11\_012914\_01 and RD-11\_012914\_36 were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	RD-11_012914_01	RD-11_012914_36			
1,2,3,4,6,7,8-HpCDD	2.8	0.98U	96 ( $\leq 35$ )	NQ	-
OCDD	26	3.8	149 ( $\leq 35$ )	NQ	-
1,2,3,4,6,7,8-HpCDF	1.2	0.71U	51 ( $\leq 35$ )	NQ	-
1,2,3,4,7,8,9-HpCDF	1.6	0.84U	62 ( $\leq 35$ )	NQ	-
OCDF	13	1.1U	169 ( $\leq 35$ )	NQ	-

NQ = One or both results were  $< 5x$  the reporting limit, therefore no data were qualified.

Samples HAR-16\_012914\_01 and HAR-16\_012914\_03 (from SDG 14A148) were identified as split samples. No polychlorinated dioxin/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	HAR-16_012914_01	HAR-16_012914_03			
2,3,7,8-TCDD	2.2U	1.10	67 (≤35)	NQ	-
1,2,3,7,8-PeCDF	0.89U	0.987	10 (≤35)	-	-
2,3,4,7,8-PeCDF	0.80U	0.470	52 (≤35)	NQ	-
1,2,3,7,8-PeCDD	1.2U	1.55	25 (≤35)	-	-
1,2,3,4,7,8-HxCDF	0.48U	0.301	46 (≤35)	NQ	-
1,2,3,6,7,8-HxCDF	0.50U	0.666	28 (≤35)	-	-
2,3,4,6,7,8-HxCDF	0.46U	1.05	78 (≤35)	NQ	-
1,2,3,4,7,8-HxCDD	1.0U	0.521	63 (≤35)	NQ	-
1,2,3,6,7,8-HxCDD	1.1U	1.72	44 (≤35)	NQ	-
1,2,3,7,8,9-HxCDF	0.56U	1.63	98 (≤35)	NQ	-
1,2,3,4,6,7,8-HpCDF	0.67U	0.799	18 (≤35)	-	-
1,2,3,4,6,7,8-HpCDD	0.94U	0.745	23 (≤35)	-	-
1,2,3,4,7,8,9-HpCDF	0.84U	0.900	7 (≤35)	-	-
OCDD	2.8	1.34	71 (≤35)	NQ	-
OCDF	1.4	1.54	10 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51633-1/H4B030412**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51633-1/ H4B030412	RD-11_012914_01 HAR-16_012914_01 RD-78_012914_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51633-1/H4B030412**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51633-1/ H4B030412	HAR-16_012914_01	OCDD	2.8U pg/L	A	B
280-51633-1/ H4B030412	RD-78_012914_01	OCDD	3.7U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51633-1/H4B030412**

No Sample Data Qualified in this SDG

LDC #: 31612G21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 9/29/14

SDG #: 280-51633-1/H4B030412

Level IV

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: SV

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 1/29/14
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	7. RSD ≤ 20/30 %
IV.	Continuing calibration/ICV	A	COV/ICV ≤ 20/30 %
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	CS
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation RL/LOQ/LODs	A	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates / Split	SW	D = 1 + RD-11-012914-30 (same SDG) S = 2 + HAR-16-012914-01 (14A148)
XV.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1 <sup>+</sup>	RD-11_012914_01	11	40 36029 MB	21		31	
2 <sup>+</sup>	HAR-16_012914_01	12		22		32	
3 <sup>+</sup>	RD-78_012914_01	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Method:** Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Was PFK exact mass 380.9760 verified?	/			
Were the retention time windows established for all homologues?	/			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers $\leq 25\%$ ?	/			
Is the static resolving power at least 10,000 (10% valley definition)?	/			
Was the mass resolution adequately check with PFK?	/			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	/			
<b>III. Initial calibration</b>				
Was the initial calibration performed at 5 concentration levels?	/			
Were all percent relative standard deviations (%RSD) $\leq 20\%$ for unlabeled standards and for labeled standards?	/			
Did all calibration standards meet the Ion Abundance Ratio criteria?	/			
Was the signal to noise ratio for each target compound $\geq 2.5$ and for each recovery and internal standard $> 10$ ?	/			
<b>IV. Continuing calibration</b>				
Was a routine calibration performed at the beginning and end of each 12 hour period?	/			
Were all percent differences (%D) $\leq 20\%$ for unlabeled standards and $\leq 30\%$ for labeled standards?	/			
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank performed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	/			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>IX. Internal standards</b>				
Were internal standard recoveries within the 40-135% criteria?	/			
Was the minimum S/N ratio of all internal standard peaks > 10?	/			
<b>X. Target compound identification</b>				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	/			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	/			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	/			
Did compound spectra contain all characteristic ions listed in the table attached?	/			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	/			
Was the signal to noise ratio for each target compound and labeled standard $\geq$ 2.5?	/			
Does the maximum intensity of each specified characteristic ion coincide within $\pm$ 2 seconds (includes labeled standards)?	/			
For PCDF identification, was any signal (S/N $\geq$ 2.5, at $\pm$ seconds RT) detected in the corresponding PCDF channel?	/			
Was an acceptable lock mass recorded and monitored?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.	/			
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y / N / N/A Were all samples associated with a method blank?

Y / N / N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y / N / N/A Was the method blank contaminated?

Blank extraction date: 2/05/14 Blank analysis date: 2/11/14

Associated samples: All (Code: B)

Conc. units: pg/L

5x  
21

Compound	Blank ID	Sample Identification							
	40 360 29	MB							
G	4.2*		2.8 <sup>*</sup> /U	3.7 <sup>*</sup> /U					

\* EMPC

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A  
Y N N/A

Were field duplicate pairs identified in this SDG.

Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Pg/L)		RPD (≤35%)	Qualifications (Parent only)
	1	RD-1L012914 <del>03</del>		
F	2.8 *	0.984	96	NQ (≤5xRL) ↓
G	26	3.8	149	
O	1.2 *	0.714	51	
P	1.6 *	0.844	62	
Q	13	1.14	169	

\* EMPC

Compound	Concentration ( )		RPD (≤35%)	Qualifications (Parent only)

Compound	Concentration ( )		RPD (≤35%)	Qualifications (Parent only)

Field SplitsReviewer: JVG2nd Reviewer:     

Method: HRGC/HRMS Dioxins (EPA SW 846 Method 8290)

Analyte	Concentration (pg/L)		RPD (≤35%)	Qualifications (Parent only)
	HAR-16_012914_01	HAR-16_012914_03		
A	2.2U	1.10*	67	NQ (<5xRL)
I	0.89U	0.987*	10	
J	0.80U	0.470*	52	NQ (<5xRL)
B	1.2U	1.55	25	
K	0.48U	0.301*	46	NQ (<5xRL)
L	0.50U	0.666*	28	
M	0.46U	1.05*	78	NQ (<5xRL)
C	1.0U	0.521*	63	NQ (<5xRL)
D	1.1U	1.72*	44	NQ (<5xRL)
N	0.56U	1.63*	98	NQ (<5xRL)
O	0.67U	0.799*	18	
F	0.94U	0.745*	23	
P	0.84U	0.900	7	
G	2.8*	1.34	71	NQ (<5xRL)
Q	1.4*	1.54	10	

\*EMPC

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound,

S= Standard deviation of the RRFs,

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (10/50/100 std)	Recalculated RRF (10/50/100 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL M2A	8/22/2011	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.093	1.093	1.118	1.118	3.7	3.7
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.023	1.023	1.094	1.094	14.7	14.7
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.078	1.078	1.125	1.125	7.7	7.7
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.093	1.093	1.110	1.110	6.2	6.3
			OCDD (13C-OCDD)	1.153	1.153	1.169	1.169	3.5	3.5

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

ave. RRF = ICAL average RRF  
 RRF = CCV RRF  
 Ax = Area of compound

Cx = Concentration of compound  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial RRF)	Reported (CC RRF)	Recalculated (CC RRF)	Reported %D	Recalculated %D
1	B140211S1  M2A	02/11/14	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.118	1.153	1.153	3.1	3.1
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.094	1.063	1.063	2.9	2.9
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.125	1.147	1.147	2.0	2.0
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.110	1.125	1.125	1.4	1.4
			OCDD (13C-OCDD)	1.169	1.205	1.205	3.0	3.0

LDC #: 31612 G21

## VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * SSC/SA$       Where: SSC = Spiked sample concentration  
SA = Spike added

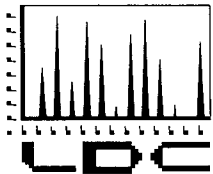
RPD =  $|LCS - LCSD| * 2 / (LCS + LCSD)$       LCS = Laboratory control sample percent recovery      LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 4036029 LCS

Compound	Spike Added (pg/L)		Spiked Sample Concentration (pg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc	Reported	Recalc	Reported	Recalc
2,3,7,8-TCDD	200	NA	212	NA	106	106				
1,2,3,7,8-PeCDD	1000		1060		106	106				
1,2,3,4,7,8-HxCDD			1040		104	104				
1,2,3,4,7,8,9-HpCDF			1030		103	103				
OCDF	2000		2420		121	121				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project # 31612:

#### Former LDC# SDG#

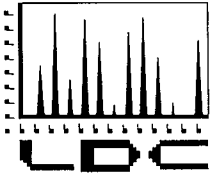
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

#### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



EDD Client Select IV LDC #31612 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	FORMER LDC#	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625)		DRO (8015B)		Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		NO <sub>3</sub> -N (300.0)		CLO <sub>4</sub> (314.0)		S= (4500 S2 D)		D.Gross α (900.0)		Tritium (906.0)		Sr-90 (905.0)					
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
Matrix: Water/Soil																																						
B	31307A	280-51368-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
C	31345A	280-51416-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	31345B	280-51465-1	04/07/14	04/14/14	-	-	-	-	1	0	1	0	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E	31345D	280-51539-1	04/07/14	04/14/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	
F	31361D	280-51632-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	
G	31361E	280-51633-1 /H4B030412	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	31361F	280-51670-1 /H4B030402	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J	31361G	280-51767-1 /H4B060406	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K	31380D	280-51797-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
L	31419B	280-51958-1	04/07/14	04/14/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
M	NA	280-51959-2	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	
N	31547D	280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02065-OR/ 14-02068-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	1	0	-	-	-	-	-	-	
O	31438A	280-52081-1	04/07/14	04/14/14	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
P	31547E	280-52126-1/ 14-02066-OR/ 14-02067-OR/ 14-02069-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-
Total		T/PG			3	0	1	0	1	0	1	0	1	0	1	0	10	0	1	0	1	0	1	0	1	0	3	0	2	0	3	0	1	0	0	0	31	

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 30, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51670-1/H4B030402

**Sample Identification**

RD-45A\_013014\_01  
PZ-016G\_013014\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 280-51767-1/ H4B060406	All TCL compounds	Cooler temperature was reported at 13.2°C upon receipt by the laboratory.	Cooler temperature must be 4±2°C.	J (all detects) UJ (all non-detects)	A

## II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

The exact mass of 380.9760 of PFK was verified.

The static resolving power was at least 10,000 (10% valley definition).

## III. Initial Calibration

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio for each target compound was greater than or equal to 2.5 and greater than or equal to 10 for each recovery and internal standard compound.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled

compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4036029MB	2/5/14	OCDD	4.2 pg/L	All samples in SDG 280-51670-1/H4B030402

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-45A_013014_01	OCDD	2.2 pg/L	2.2U pg/L
PZ-016G_013014_01	OCDD	6.0 pg/L	6.0U pg/L

Sample FB\_021214\_19 (from SDG 280-52090-1) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	OCDD	17 pg/L	PZ-016G_013014_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
PZ-016G_013014_01	OCDD	6.0 pg/L	6.0U pg/L

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VIII. Regional Quality Assurance and Quality Control

Not applicable.

## IX. Internal Standards

All internal standard recoveries (%R) were within QC limits.

## X. Target Compound Identifications

All target compound identifications were within validation criteria.

## XI. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51670-1/H4B030402	All compounds reported below the RL.	J (all detects)	A

## XII. System Performance

The system performance was acceptable.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51670-1/H4B030402**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51670-1/ H4B030402	RD-45A_013014_01 PZ-016G_013014_01	All TCL compounds	J (all detects) UJ (all non-detects)	A	Cooler temperatures (*I)
280-51670-1/ H4B030402	RD-45A_013014_01 PZ-016G_013014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51670-1/H4B030402**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51670-1/ H4B030402	RD-45A_013014_01	OCDD	2.2U pg/L	A	B
280-51670-1/ H4B030402	PZ-016G_013014_01	OCDD	6.0U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51670-1/H4B030402**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51670-1/ H4B030402	PZ-016G_013014_01	OCDD	6.0U pg/L	A	F

LDC #: 31612H21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 4/09/14

SDG #: 280-51670-1/H4B030402

Level IV

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: JVB

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 1/30/14
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	2 KSD $\leq$ 20/30 3
IV.	Continuing calibration/ICV	A	CCV/ICV $\leq$ 20/30 2
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	A	RD-45B-01 3014-01
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation RL/LOQ/LODs	A	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	SW	FB = FB-021214-19 (280-52090-1)

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:

Water

1	RD HAR-45A_013014_01	11	4036029 MB	21		31	
2	PZ-016G_013014_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Method:** Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Was PFK exact mass 380.9760 verified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the retention time windows established for all homologues?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers < 25% ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the static resolving power at least 10,000 (10% valley definition)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the mass resolution adequately check with PFK?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>III. Initial calibration</b>				
Was the initial calibration performed at 5 concentration levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled standards and for labeled standards?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did all calibration standards meet the Ion Abundance Ratio criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard > 10?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a routine calibration performed at the beginning and end of each 12 hour period?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) ≤ 20% for unlabeled standards and ≤ 30% for labeled standards?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank performed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			/	
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>IX. Internal standards</b>				
Were internal standard recoveries within the 40-135% criteria?	/			
Was the minimum S/N ratio of all internal standard peaks $\geq 10$ ?	/			
<b>X. Target compound identification</b>				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	/			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	/			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	/			
Did compound spectra contain all characteristic ions listed in the table attached?	/			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	/			
Was the signal to noise ratio for each target compound and labeled standard $\geq 2.5$ ?	/			
Does the maximum intensity of each specified characteristic ion coincide within $\pm 2$ seconds (includes labeled standards)?	/			
For PCDF identification, was any signal ( $S/N \geq 2.5$ , at $\pm$ seconds RT) detected in the corresponding PCDPE channel?	/			
Was an acceptable lock mass recorded and monitored?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.	/			

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



LDC #: 31612 H21

### VALIDATION FINDINGS WORKSHEET Blanks

Page: 1 of 1

Reviewer: JYG

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?

Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?

Y N N/A Was the method blank contaminated?

Blank extraction date: 2/05/14 Blank analysis date: 2/11/14

Associated samples: All (Code: B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification							
	4036029	MPB	1	2					
G	4.2*		2.2*/4	6.0/4					

\* EMPC

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 31612 #21

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1  
Reviewer: JYG  
2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

N/A Were field blanks identified in this SDG?

Blank units: pg/L Associated sample units: pg/L

Sampling date: 2/12/14

Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: A 2 (Coli: F)

Compound	Blank ID	Sample Identification							
	FB_021214-19		2						
G	17		6.0/U						
CRQL									

Blank units: Associated sample units:

Sampling date:

Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples:

Compound	Blank ID	Sample Identification							
CRQL									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

A<sub>x</sub> = Area of Compound

C<sub>x</sub> = Concentration of compound,

S= Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (10/50/100 std)	Recalculated RRF (10/50/100 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL M2A	8/22/2011	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.093	1.093	1.118	1.118	3.7	3.7
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.023	1.023	1.094	1.094	14.7	14.7
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.078	1.078	1.125	1.125	7.7	7.7
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.093	1.093	1.110	1.110	6.2	6.3
			OCDD (13C-OCDD)	1.153	1.153	1.169	1.169	3.5	3.5

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$$

ave. RRF = ICAL average RRF

RRF = CCV RRF

Ax = Area of compound

Cx = Concentration of compound

Ais = Area of associated internal standard

Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial RRF)	Reported (CC RRF)	Recalculated (CC RRF)	Reported %D	Recalculated %D
1	B140210S3  M2A	02/10/14	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.118	1.121	1.121	0.2	0.2
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.094	1.099	1.099	0.4	0.4
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.125	1.134	1.134	0.8	0.8
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.110	1.140	1.140	2.7	2.7
			OCDD (13C-OCDD)	1.169	1.191	1.191	1.9	1.9
2	B140211S1  M2A	02/11/14	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.118	1.153	1.153	3.1	3.1
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.094	1.063	1.063	2.9	2.9
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.125	1.147	1.147	2.0	2.0
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.110	1.125	1.125	1.4	1.4
			OCDD (13C-OCDD)	1.169	1.205	1.205	3.0	3.0



LDC #: 31612 H21

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SSR - SR)/SA

Where: SSR = Spiked sample result, SR = Sample result  
 SA = Spike added

RPD = |MSR - MSDR| \* 2 / (MSR + MSDR)

MSR = Matrix spike percent recovery    MSDR = Matrix spike duplicate percent recovery

MS/MSD samples: RD-F5B-012014-01 MS/MSD

Compound	Spike Added (pg/L)		Sample Concentration (pg/L)	Spiked Sample Concentration (pg/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	RPD
						Reported	Recalc	Reported	Recalc		
2,3,7,8-TCDD	189	189	0	193	198	107	107	105	105	2.6	2.6
1,2,3,7,8-PeCDD	945	945	↓	1010	989	107	107	105	105	2.1	2.1
1,2,3,4,7,8-HxCDD	↓	↓	↓	945	979	100	100	103	103	3.0	3.0
1,2,3,4,7,8,9-HpCDF	↓	↓	↓	1000 894	989 1000	9106 95	106 95	105 106	105 106	1.2	1.1
OCDF	1890	1890	↓	2300	2240	122	122	119	119	2.6	2.6

Comments: Refer to Matrix Spike/Matrix Spike Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31612 H21

### VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * SSC/SA$       Where: SSC = Spiked sample concentration  
SA = Spike added

RPD =  $|LCS - LCSD| * 2 / (LCS + LCSD)$       LCS = Laboratory control sample percent recovery      LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 40 36029 LCS

Compound	Spike Added (pg/L)		Spiked Sample Concentration (pg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc	Reported	Recalc	Reported	Recalc
2,3,7,8-TCDD	200	NA	212	NA	106	106				
1,2,3,7,8-PeCDD	1000		1060		106	106				
1,2,3,4,7,8-HxCDD			1040		104	104				
1,2,3,4,7,8,9-HpCDF			1090		109	103				
OCDF	2000	X	2420		121	121				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3/612 H21

## VALIDATION FINDINGS WORKSHEET

### Sample Calculation Verification

Page: 1 of 1  
 Reviewer: JVG  
 2nd reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y / ~~N~~ / N/A  
~~Y~~ / N / N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$$

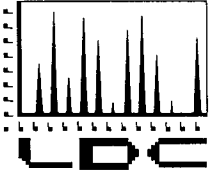
- A<sub>x</sub> = Area of the characteristic ion (EICP) for the compound to be measured
- A<sub>is</sub> = Area of the characteristic ion (EICP) for the specific internal standard
- I<sub>s</sub> = Amount of internal standard added in nanograms (ng)
- V<sub>o</sub> = Volume or weight of sample extract in milliliters (ml) or grams (g).
- RRF = Relative Response Factor (average) from the initial calibration
- Df = Dilution Factor.
- %S = Percent solids, applicable to soil and solid matrices only.

Example:

Sample I.D. 1, OCDD:

$$\begin{aligned} \text{Conc.} &= \frac{(773) (2000) (1000)}{(60322) (1.69) (1019 \text{ ml})} \\ &= 2.1515 \\ &\approx 2.2 \text{ pg/L} \end{aligned}$$

#	Sample ID	Compound	Reported Concentration <small>(pg/L)</small>	Calculated Concentration <small>( )</small>	Qualification
			<u>2.2</u>		



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

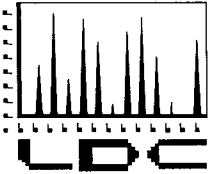
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31612 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	FORMER LDC#	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625)		DRO (8015B)		Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		NO <sub>3</sub> -N (300.0)		CLO <sub>4</sub> (314.0)		S= (4500 S2 D)		D.Gross α (900.0)		Tritium (906.0)		Sr-90 (905.0)				
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W
Matrix: Water/Soil																																					
B	31307A	280-51368-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-
C	31345A	280-51416-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	31345B	280-51465-1	04/07/14	04/14/14	-	-	-	-	1	0	1	0	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	31345D	280-51539-1	04/07/14	04/14/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-
F	31361D	280-51632-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-
G	31361E	280-51633-1 /H4B030412	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	31361F	280-51670-1 /H4B030402	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
J	31361G	280-51767-1 /H4B060406	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	31380D	280-51797-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L	31419B	280-51958-1	04/07/14	04/14/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M	NA	280-51959-2	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-
N	31547D	280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02065-OR/ 14-02068-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	1	0	-	-	-	-	-	-
O	31438A	280-52081-1	04/07/14	04/14/14	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	31547E	280-52126-1/ 14-02066-OR/ 14-02067-OR/ 14-02069-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-
Total					3	0	1	0	1	0	1	0	1	0	1	0	10	0	1	0	1	0	1	0	1	0	3	0	2	0	3	0	1	0	0	0	31

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 3, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** Dioxins/Dibenzofurans

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51767-1/H4B060406

**Sample Identification**

RD-84\_020314\_01  
HAR-01\_020314\_01  
C-1\_020314\_01  
RD-73\_020314\_01  
RD-73\_020314\_36  
HAR-01\_020314\_01MS  
HAR-01\_020314\_01MSD

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8290 for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. HRGC/HRMS Instrument Performance Check**

Instrument performance was checked at the required daily frequency.

Retention time windows were established for all homologues.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

The exact mass of 380.9760 of PFK was verified.

The static resolving power was at least 10,000 (10% valley definition).

## **III. Initial Calibration**

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio for each target compound was greater than or equal to 2.5 and greater than or equal to 10 for each recovery and internal standard compound.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
8/21/13	1,2,3,4,7,8-HxCDF	22.96	All samples in SDG 280-51767-1/ H4B060406	J (all detects) UJ (all non-detects)	P

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
4037040MB	2/6/14	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	1.9 pg/L 14 pg/L 0.53 pg/L 0.90 pg/L 5.3 pg/L	All samples in SDG 280-51767-1/H4B060406

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-84_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	1.6 pg/L 9.1 pg/L 0.58 pg/L 0.86 pg/L	1.6U pg/L 9.1U pg/L 0.58U pg/L 0.86U pg/L
HAR-01_020314_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	0.40 pg/L 6.8 pg/L 1.9 pg/L	0.40U pg/L 6.8U pg/L 1.9U pg/L
C-1_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.72 pg/L 4.5 pg/L 0.41 pg/L 0.18 pg/L 0.58 pg/L	0.72U pg/L 4.5U pg/L 0.41U pg/L 0.18U pg/L 0.58U pg/L
RD-73_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.70 pg/L 3.7 pg/L 0.15 pg/L 0.68 pg/L	0.70U pg/L 3.7U pg/L 0.15U pg/L 0.68U pg/L

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-73_020314_36	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.64 pg/L 5.3 pg/L 0.39 pg/L 0.71 pg/L	0.64U pg/L 5.3U pg/L 0.39U pg/L 0.71U pg/L

Sample FB\_021214\_19 (from SDG 280-52090-1) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	OCDD	17 pg/L	C-1_020314_01 RD-73_020314_01 RD-73_020314_36

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
C-1_020314_01	OCDD	4.5 pg/L	4.5U pg/L
RD-73_020314_01	OCDD	3.7 pg/L	3.7U pg/L
RD-73_020314_36	OCDD	5.3 pg/L	5.3U pg/L

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
HAR-01_020314_01MS/MSD (HAR-01_020314_01)	2,3,7,8-TCDD	-	132 (77-127)	18 (≤15)	J (all detects)	A

## VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent

## X. Target Compound Identifications

All target compound identifications were within validation criteria.

## XI. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-51767-1/H4B060406	All compounds reported below the RL.	J (all detects)	A

## XII. System Performance

The system performance was acceptable.

## XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIV. Field Duplicates

Samples RD-73\_020314\_01 and RD-73\_020314\_36 were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/L)		RPD (Limits)	Flag	A or P
	RD-73_020314_01	RD-73_020314_36			
1,2,3,4,6,7,8-HpCDD	0.70	0.64	9 (≤35)	-	-
OCDD	3.7	5.3	36 (≤35)	NQ	-
2,3,4,7,8-PeCDF	0.13	0.20U	42 (≤35)	NQ	-
1,2,3,6,7,8-HxCDF	0.15	0.12U	22 (≤35)	-	-
2,3,4,6,7,8-HxCDF	0.092	0.13U	34 (≤35)	-	-
1,2,3,4,6,7,8-HpCDF	0.15	0.39	89 (≤35)	NQ	-
OCDF	0.68	0.71	4 (≤35)	-	-
1,2,3,4,7,8-HxCDF	0.086U	0.12	33 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Data Qualification Summary - SDG 280-51767-1/H4B060406**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51767-1/ H4B060406	RD-84_020314_01 HAR-01_020314_01 C-1_020314_01 RD-73_020314_01 RD-73_020314_36	1,2,3,4,7,8-HxCDF	J (all detects) UJ (all non-detects)	P	Continuing calibration (ICV %D) (C)
280-51767-1/ H4B060406	HAR-01_020314_01	2,3,7,8-TCDD	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R)(RPD) (Q, E)
280-51767-1/ H4B060406	RD-84_020314_01 HAR-01_020314_01 C-1_020314_01 RD-73_020314_01 RD-73_020314_36	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 280-51767-1/H4B060406**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51767-1/ H4B060406	RD-84_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	1.6U pg/L 9.1U pg/L 0.58U pg/L 0.86U pg/L	A	B
280-51767-1/ H4B060406	HAR-01_020314_01	1,2,3,4,6,7,8-HpCDD OCDD OCDF	0.40U pg/L 6.8U pg/L 1.9U pg/L	A	B
280-51767-1/ H4B060406	C-1_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.72U pg/L 4.5U pg/L 0.41U pg/L 0.18U pg/L 0.58U pg/L	A	B
280-51767-1/ H4B060406	RD-73_020314_01	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.70U pg/L 3.7U pg/L 0.15U pg/L 0.68U pg/L	A	B
280-51767-1/ H4B060406	RD-73_020314_36	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF OCDF	0.64U pg/L 5.3U pg/L 0.39U pg/L 0.71U pg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG 280-51767-1/H4B060406**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-51767-1/ H4B060406	C-1_020314_01	OCDD	4.5U pg/L	A	F
280-51767-1/ H4B060406	RD-73_020314_01	OCDD	3.7U pg/L	A	F
280-51767-1/ H4B060406	RD-73_020314_36	OCDD	5.3U pg/L	A	F

LDC #: 31612J21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 4/09/14

SDG #: 280-51767-1/H4B060406

Level IV

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/03/14
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	? RSD ≤ 20/30%
IV.	Continuing calibration/ICV	SW	CV/ICV ≤ 20/30%
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	LES
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation RL/LOQ/LODs	A	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D = 4, 5
XV.	Field blanks	SW	FB = FB_021214_19 (280-52090-1)

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*Water*

1	RD-84_020314_01	11		21		31	
2	HAR-01_020314_01	12		22		32	
3	C-1_020314_01	13		23		33	
4	RD-73_020314_01	14		24		34	
5	RD-73_020314_36	15		25		35	
6	HAR-01_020314_01MS	16		26		36	
7	HAR-01_020314_01MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**Method:** Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Was PFK exact mass 380.9760 verified?	/			
Were the retention time windows established for all homologues?	/			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers < 25% ?	/			
Is the static resolving power at least 10,000 (10% valley definition)?	/			
Was the mass resolution adequately check with PFK?	/			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	/			
<b>III. Initial calibration</b>				
Was the initial calibration performed at 5 concentration levels?	/			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled standards and for labeled standards?	/			
Did all calibration standards meet the Ion Abundance Ratio criteria?	/			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard > 10?	/			
<b>IV. Continuing calibration</b>				
Was a routine calibration performed at the beginning and end of each 12 hour period?	/			
Were all percent differences (%D) ≤ 20% for unlabeled standards and ≤ 30% for labeled standards?		/		
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank performed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	/			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	/			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		/		
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>IX. Internal standards</b>				
Were internal standard recoveries within the 40-135% criteria?	/			
Was the minimum S/N ratio of all internal standard peaks > 10?	/			
<b>X. Target compound identification</b>				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	/			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	/			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	/			
Did compound spectra contain all characteristic ions listed in the table attached?	/			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	/			
Was the signal to noise ratio for each target compound and labeled standard $\geq$ 2.5?	/			
Does the maximum intensity of each specified characteristic ion coincide within $\pm$ 2 seconds (includes labeled standards)?	/			
For PCDF identification, was any signal (S/N $\geq$ 2.5, at $\pm$ seconds RT) detected in the corresponding PCDF channel?	/			
Was an acceptable lock mass recorded and monitored?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	/			
Target compounds were detected in the field duplicates.	/			
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.	/			

## VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Routine Calibration**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A Was a routine calibration was performed at the beginning and end of each 12 hour period?
- Y  N  N/A Were all percent differences (%D) of RRFs  $\leq$  20% for unlabeled compounds and  $\leq$  30% for labeled?
- Y  N  N/A Did all routine calibration standards meet the Ion Abundance Ratio criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: $\leq$ 30.0%)	Finding Ion Abundance Ratio	Associated Samples	Qualifications
	8/21/13	d3130821 SS (ICN)	k	22.96		All	J / UJ / AK (C)

	PCDDs	Selected ions (m/z)	Ion Abundance Ratio		PCDFs	Selected ions (m/z)	Ion Abundance Ratio
	Tetra-	M/M+2	0.65-0.89		Tetra-	M/M+2	0.65-0.89
	Penta-	M+2/M+4	1.32-1.78		Penta-	M+2/M+4	1.32-1.78
	Hexa-	M+2/M+4	1.05-1.43		Hexa-	M+2/M+4	1.05-1.43
	Hexa- <sup>13</sup> C-HxCDF (IS) only	M/M+2	0.43-0.59		Hexa- <sup>13</sup> C-HxCDF (IS) only	M/M+2	0.43-0.59
	Hepta- <sup>13</sup> C-HpCDF (IS) only	M/M+2	0.37-0.51		Hepta- <sup>13</sup> C-HpCDF (IS) only	M/M+2	0.37-0.51
	Hepta-	M+2/M+4	0.88-1.20		Hepta-	M+2/M+4	0.88-1.20
	Octa-	M+2/M+4	0.76-1.02		Octa-	M+2/M+4	0.76-1.02

LDC #: 31612 J21

## VALIDATION FINDINGS WORKSHEET

### Blanks

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A Were all samples associated with a method blank?  
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?  
Y N N/A Was the method blank contaminated?

Blank extraction date: 2/06/14 Blank analysis date: 2/11/14

Associated samples: All (code: B)

Conc. units: pg/L

Compound	Blank ID	Sample Identification							
		1B (5x)	1	2	3	4	5		
F	4037040	9.5	1.6 / U	0.40* / U	0.72 / U	0.70* / U	0.64 / U		
G	14	70	9.1 / U	6.8 / U	4.5* / U	3.7* / U	5.3 / U		
O	0.53*	2.65	0.58* / U		0.41* / U	0.15* / U	0.39* / U		
P	0.90	4.5			0.18* / U				
Q	5.3*	26.5	0.86* / U	1.9* / U	0.58* / U	0.68* / U	0.71* / U		

\* EMPC

Blank extraction date: \_\_\_\_\_ Blank analysis date: \_\_\_\_\_

Conc. units: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
 All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 31612 J21

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were field blanks identified in this SDG?

Blank units: pg/L Associated sample units: pg/L

Sampling date: 2/12/14

Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: 3-5 (Code: F)

Compound	Blank ID	Sample Identification							
	FB-021214-19	<u>3</u>	<u>4</u>	<u>5</u>					
<u>G</u>	<u>17</u>	<u>4.5*/u</u>	<u>3.7*/u</u>	<u>5.3/u</u>					
CRQL									

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Other: \_\_\_\_\_ Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							
CRQL									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Samples with compound concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		6/7	A	( )	132 (77-127)	18 (15)	2	J det/A (Q/E)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A  
Y N N/A

Were field duplicate pairs identified in this SDG.  
Were target compounds detected in the field duplicate pairs?

Compound	Concentration (pg/L)		RPD (≤35%)	Qualifications (Parent only)
	4	5		
F	0.70 *	0.64	9	
G	3.7 *	5.3	36	NA (<5xRL)
J	0.13 +	0.204	42	↓
L	0.15 *	0.124	22	
M	0.092 +	0.134	34	
O	0.15 *	0.39 *	89	NA (<5xRL)
Q	0.68 *	0.71 *	4	
K	0.086 U	0.12 *	33	

Compound	Concentration ( )		RPD (≤35%)	Qualifications (Parent only)

Compound	Concentration ( )		RPD (≤35%)	Qualifications (Parent only)



**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

A<sub>x</sub> = Area of Compound

C<sub>x</sub> = Concentration of compound,

S = Standard deviation of the RRFs,

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (0.5/2.5/5 std)	Recalculated RRF (0.5/2.5/5 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL D2A	8/21/2013	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.089	1.089	1.137	1.137	6.6	6.6
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	0.954	0.954	1.017	1.017	4.6	4.6
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.262	1.262	1.167	1.167	5.1	5.1
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.338	1.338	1.175	1.175	7.9	7.9
			OCDD (13C-OCDD)	1.398	1.398	1.2950	1.295	4.9	4.9

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

ave. RRF = ICAL average RRF  
 RRF = CCV RRF  
 Ax = Area of compound

Cx = Concentration of compound  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial RRF)	Reported (CC RRF)	Recalculated (CC RRF)	Reported %D	Recalculated %D
1	d3140211s2	02/11/14	2,3,7,8-TCDD (13C-2,3,7,8-TCDD)	1.137	1.346	1.346	18.4	18.4
			2,3,7,8-TCDF (13C-2,3,7,8-TCDF)	1.017	1.150	1.150	13.1	13.1
			1,2,3,6,7,8-HxCDD (13C-1,2,3,6,7,8-HxCDD)	1.167	1.173	1.173	0.5	0.5
			1,2,3,4,6,7,8-HpCDD (13C-1,2,4,6,7,8,-HpCDD)	1.175	1.178	1.178	0.3	0.3
			OCDD (13C-OCDD)	1.295	1.314	1.314	1.5	1.5

LDC #: 31612 J21

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

Page:     of      
 Reviewer: JVG  
 2nd Reviewer:    

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SSR - SR)/SA

Where: SSR = Spiked sample result, SR = Sample result  
 SA = Spike added

RPD = |MSR - MSDR| \* 2 / (MSR + MSDR)

MSR = Matrix spike percent recovery    MSDR = Matrix spike duplicate percent recovery

MS/MSD samples: 6/7

Compound	Spike Added (pg/L)		Sample Concentration (pg/L)	Spiked Sample Concentration (pg/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	RPD
						Reported	Recalc	Reported	Recalc	Reported	Recalc
2,3,7,8-TCDD	191	191	0	210	252	110	110	132	132	18	18
1,2,3,7,8-PeCDD	956	956	↓	941	965	98	98	101	101	2.4	2.5
1,2,3,4,7,8-HxCDD	↓	↓	↓	990	967	104	104	101	101	2.4	2.4
1,2,3,4,7,8,9-HpCDF	↓	↓	↓	905	949	95	95	99	99	4.8	4.8
OCDF	1910	1910	1.9	2010	2200	105	105	115	115	8.8	9.0

Comments: Refer to Matrix Spike/Matrix Spike Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31612J21

### VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * SSC/SA$       Where: SSC = Spiked sample concentration  
SA = Spike added

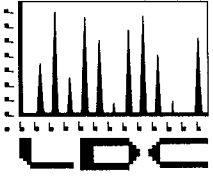
RPD =  $|LCS - LCSD| * 2 / (LCS + LCSD)$       LCS = Laboratory control sample percent recovery      LCSD = Laboratory control sample duplicate percent recovery

LCS ID: 4037046 LCS

Compound	Spike Added (Pg/L)		Spiked Sample Concentration (Pg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
2,3,7,8-TCDD	200	NA	236	NA	118	118				
1,2,3,7,8-PeCDD	1000	↓	1040	↓	104	104				
1,2,3,4,7,8-HxCDD	↓	↓	958	↓	96	96				
1,2,3,4,7,8,9-HpCDF	↓	↓	973	↓	97	97				
OCDF	2000	↓	203	↓	102	102				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

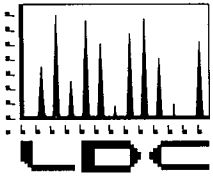
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31612 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	FORMER LDC#	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625)		DRO (8015B)		Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		NO <sub>3</sub> -N (300.0)		CLO <sub>4</sub> (314.0)		S= (4500 S2 D)		D.Gross α (900.0)		Tritium (906.0)		Sr-90 (905.0)						
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	
Matrix: Water/Soil																																							
B	31307A	280-51368-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	31345A	280-51416-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	31345B	280-51465-1	04/07/14	04/14/14	-	-	-	-	1	0	1	0	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
E	31345D	280-51539-1	04/07/14	04/14/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	
F	31361D	280-51632-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	
G	31361E	280-51633-1 /H4B030412	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
H	31361F	280-51670-1 /H4B030402	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
J	31361G	280-51767-1 /H4B060406	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K	31380D	280-51797-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
L	31419B	280-51958-1	04/07/14	04/14/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
M	NA	280-51959-2	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	
N	31547D	280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	1	0	-	-	-	-	-	-	-	
O	31438A	280-52081-1	04/07/14	04/14/14	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
P	31547E	280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	
Total		T/PG			3	0	1	0	1	0	1	0	1	0	1	0	10	0	1	0	1	0	1	0	1	0	3	0	2	0	3	0	1	0	0	0	31		



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 4, 2014

**LDC Report Date:** April 9, 2014

**Matrix:** Water

**Parameters:** N-Nitrosodimethylamine

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51797-1

**Sample Identification**

HAR-25\_020414\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1625C for N-Nitrosodimethylamine.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance check was not performed for this SDG.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0%.

The percent differences (%D) of the second source calibration standard were less than or equal to 30.0%.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No N-nitrosodimethylamine was found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG280-51797-1	All compounds reported below the RL	J (all detects)	A

## XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria.

## XIV. System Performance

The system performance was acceptable.

## XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Data Qualification Summary - SDG 280-51797-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-51797-1	HAR-25_020414_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
N-Nitrosodimethylamine - Field Blank Data Qualification Summary - SDG 280-51797-1**

No Sample Data Qualified in this SDG

LDC #: 31612K2c  
 SDG #: 280-51797-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/09/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS N-Nitrosodimethylamine (EPA Method 1625C) <sup>SN 846 Method 6270D-SIM</sup>

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2/04/14</u>
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	<u>7% RSD ≤ 20%</u>
IV.	Continuing calibration/ICV	A	<u>CCV ≤ 20% ICV ≤ 30%</u>
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	<u>LCS 10</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: Water

1	HAR-25_020414_01	11	<u>MB 280-212494 / A</u>	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 31612 k2c

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

NDMA

Method: PAH (EPA SW 846 Method 8270D-SIM)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) ≤ 20% and relative response factors (RRF) within the method criteria?	/			
Was a curve fit used for evaluation?		/		
Did the initial calibration meet the curve fit acceptance criteria of > 0.990?			/	
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			



Validation Area	Yes	No	NA	Findings/Comments
<b>IX: Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X: Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds from the associated calibration standard?	/			
<b>XI: Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XII: Compound quantitation/CRQLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII: Tentatively identified compounds (TICs)</b>				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
<b>XIV: System performance</b>				
System performance was found to be acceptable.	/			
<b>XV: Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI: Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII: Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS NDMA (EPA SW 846 Method 8270D-SIM)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$$

$$\text{average RRF} = \text{sum of the RRFs} / \text{number of standards}$$

$$\%RSD = 100 * (S/X)$$

Ax = Area of Compound

Cx = Concentration of compound

S = Standard deviation of the RRFs

Ais = Area of associated internal standard

Cis = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 50 std)	Recalculated RRF (RRF 50 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL SMS G5	2/18/2014	NDMA (NDMA-d6)	1.1137	1.1137	1.0863	1.0863	2.4	2.4



LDC #: 31612 k2c

## VALIDATION FINDINGS WORKSHEET

### Surrogate Results Verification

Page: 1 of 1Reviewer: JVG2nd reviewer: X
 METHOD: GC/MS <sup>NDMA</sup> ~~PAH~~ (EPA SW 846 Method 8270D-SIM)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$ 
 Where: SF = Surrogate Found  
 SS = Surrogate Spiked
Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5 <sup>NDMA-d6</sup>	50	32.3	65	65	0
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

LDC #: 31612k2c

**VALIDATION FINDINGS WORKSHEET**

**Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification**

Reviewer: JVG  
 2nd Reviewer: [Signature]

<sup>NDMA</sup>  
**METHOD: GC/MS-PAH (EPA SW 846 Method 8270D-SIM)**

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SC/SA)

Where: SSC = Spike concentration  
 SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

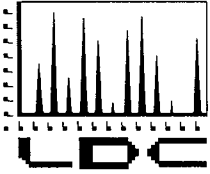
LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: LCS/D 250 - 2/2494 / 2, 3 - A

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
NDMA	0.0250	0.0250	0.0240	0.0237	96	96	95	95	1	1

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

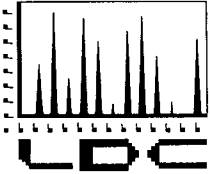
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 7, 2014  
**LDC Report Date:** April 10, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-51959-2/14-02112S

**Sample Identification**

RD-86\_020714\_01 SUS  
RD-86\_020714\_01 SUSDUP

Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 2 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-51959-2/14-02112S	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 280-51959-2/14-02112S**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-51959-2/ 14-02112S	RD-86_020714_01 SUS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-51959-2/14-02112S**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 280-51959-2/14-02112S**

No Sample Data Qualified in this SDG

9M4 → 280-51959-2 / 14-021125

LDC #: 31612M61 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-51959-2 / ~~NA~~ 280-51959-2 Level XIV

Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 4-9-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-7-14</u>
II.	Initial calibration	A <del>N</del>	
III.	Calibration verification	A <del>N</del>	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	A <del>N</del>	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
Water

1	RD-86_020714_01 SUS	11		21		31	
2	# 1 DUP	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: "SUS" is particulate

LDC #: 31612 M61  
 SDG #:                     

**VALIDATION FINDINGS CHECKLIST**

Page: 1 of 6  
 Reviewer: MG  
 2nd Reviewer:                     

**Method: Radiochemistry (EPA Method 905.0 )**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?	✓			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			



LDC #: 31612M61  
SDG #: \_\_\_\_\_

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: \_\_\_\_\_

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field duplicates.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
XI. Field blanks				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

LDC #: 31612M61  
 SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: —

METHOD: Radiochemistry (Method: 905.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

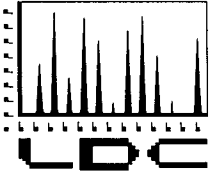
A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Sr-90	50.6 (pCi/L)	47.2 (pCi/L)	107	110	Y
—	Matrix spike sample	—	—	—	—	—	—
2	Duplicate RPD	Sr-90	1.42 (pCi/L)	1.59 (pCi/L)	11.30	10.77	Y
1	Chemical recovery	Sr	0.0113 0.0119 (g) 91%	0.0119 (g)	94.96	95.02	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

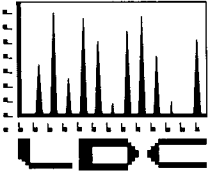
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 10, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02056-OR

**Sample Identification**

RD-13\_021114\_01 DIS  
RD-13\_021114\_36 DIS

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 900.0 for Gross Alpha.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## III. Continuing Calibration

Continuing calibration and background determination was performed at the required frequencies.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Gross Alpha	0.15 pCi/L	All samples in SDG 280-52030-1/ 14-02056-OR

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Isotope	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
RD-34C_021114_01 DISMS/MSD (All samples in SDG 280-52030-1/ 14-02056-OR)	Gross Alpha	-	74 (75-125)	-	J (all detects) UJ (all non-detects)	A

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Normalized Difference (Limits)	Flag	A or P
RD-34C_021114_01 DISDUP (All samples in SDG 280-52030-1/ 14-02056-OR)	Gross Alpha	-	3.45 ( $\leq 3$ )	J (all detects) UJ (all non-detects)	A

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross alpha	76 (80-120)	All samples in SDG 280-52030-1/14-02056-OR	J (all detects) UJ (all non-detects)	P

## VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02056-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples RD-13\_021114\_01 DIS and RD-13\_021114\_36 DIS were identified as field duplicates. No gross alpha was detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/L)		RPD (Limits)	Flag	A or P
	RD-13_021114_01 DIS	RD-13_021114_36 DIS			
Gross Alpha	6.0	22	114 ( $\leq 35$ )	J (all detects)	A

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha - Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02056-OR	RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross alpha	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
280-52030-1/ 14-02056-OR	RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (difference) (E)
280-52030-1/ 14-02056-OR	RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross alpha	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52030-1/ 14-02056-OR	RD-13_021114_01 DIS RD-13_021114_36 DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)
280-52030-1/ 14-02056-OR	RD-13_021114_01 DIS RD-13_021114_36 DIS	Gross Alpha	J (all detects)	A	Field duplicates (RPD) (*XI)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02056-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gross Alpha (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	SW	MS/MSD DUP (this SDG)
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	9M4
X.	Field duplicates	SW	<del>D=9+10</del> D=1+2
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

all water

1	RD-13_021114_01 DIS	11		21		31	
2	RD-13_021114_36 DIS	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "Dis" is dissolved

LDC #: 31612N22  
 SDG #: -

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

Method: Radiochemistry (EPA Method 900.0)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.	✓			
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD, or MS/DUP. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?		✓		
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%		✓		
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31612N22  
 SDG #: ~

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: J

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Radiochemistry, Method 900.0

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** all (>5x or ND)

Isotope	Blank ID	Blank Action Limit	Sample Identification											
				PB	No Qual's.									
Gross Alpha	0.15	0.75												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".









Method: Radiochemistry (900.0)

2nd Reviewer: X

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	1	2		
Gross Alpha	6.0	22	114	J dets/ A (X)

LDC #: 31612N22  
 SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: —

METHOD: Radiochemistry (Method: 900.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Gross Alpha	245 (pCi/L)	320 (pCi/L)	77	76	Y
D-34C_021114-01DIS MS	Matrix spike sample	Gross Alpha	1307 (pCi/L)	1580 (pCi/L)	83	82	↓
D-34C_021114-01DIS DUP	Duplicate RPD	Gross Alpha	3.25 (pCi/L)	1.17 (pCi/L)	94.12	93.98	
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 11, 2014  
**LDC Report Date:** April 10, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52030-1/14-02065-OR

**Sample Identification**

RD-34C\_021114\_01  
RD-34C\_021114\_01MS  
RD-34C\_021114\_01MSD

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) analyses were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52030-1/14-02065-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-52030-1/14-02065-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52030-1/ 14-02065-OR	RD-34C_021114_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-52030-1/14-02065-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-52030-1/14-02065-OR**

No Sample Data Qualified in this SDG

LDC #: 31612N34 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52030-1/14-02065-OR Level IV

Laboratory: Test America, Inc./Eberline Analytical Corporation

Date: 4-9-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2-11-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	MS / MSD DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
all

1	RD-34C_021114_01	11		21		31	
2	RD-34C_021114_01MS	12		22		32	
3	RD-34C_021114_01MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LDC #: 31612N34  
 SDG #:                     

**VALIDATION FINDINGS CHECKLIST**

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:                     

**Method:** Radiochemistry (EPA Method 906.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

LDC #: 31612N34  
 SDG #:       

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer:    

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field duplicates.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
XI. Field blanks				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

LDC #: 31612N34  
 SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

METHOD: Radiochemistry (Method: 906.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

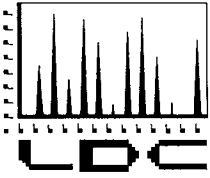
$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	H-3	6380 (pci/L)	7180 (pci/L)	89	89	Y
2	Matrix spike sample	H-3	22850 (pci/L)	26700 (pci/L)	86	86	↓
2D-34A-021114-01 DUP	Duplicate RPD	H-3	530 (pci/L)	710 (pci/L)	29.03	29.57	
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.







# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

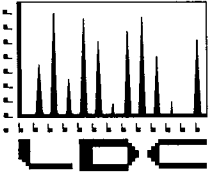
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV LDC #31612 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1<sup>st</sup> Qtr 2014)

LDC	FORMER LDC#	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		1,2,3-TCP (524.2)		SVOA (8270C)		SVOA (8270C -SIM)		NDMA (1625)		DRO (8015B)		Dioxins (8290)		Formaldehyde (8315A)		CLO <sub>4</sub> (6860)		NO <sub>3</sub> -N (300.0)		CLO <sub>4</sub> (314.0)		S= (4500 S2 D)		D.Gross α (900.0)		Tritium (906.0)		Sr-90 (905.0)							
					W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil																																								
B	31307A	280-51368-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-		
C	31345A	280-51416-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
D	31345B	280-51465-1	04/07/14	04/14/14	-	-	-	-	1	0	1	0	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
E	31345D	280-51539-1	04/07/14	04/14/14	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1	0	-	-	-	-	-	-	-	-	-	-		
F	31361D	280-51632-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-		
G	31361E	280-51633-1 /H4B030412	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
H	31361F	280-51670-1 /H4B030402	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
J	31361G	280-51767-1 /H4B060406	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
K	31380D	280-51797-1	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
L	31419B	280-51958-1	04/07/14	04/14/14	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
M	NA	280-51959-2	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	
N	31547D	280-52030-1/ 14-02056-OR/ 14-02057-OR/ 14-02065-OR/ 14-02068-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	1	0	-	-	-	-	-	-	-	
O	31438A	280-52081-1	04/07/14	04/14/14	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
P	31547E	280-52126-1/ 14-02066-OR/ 14-02067-OR/ 14-02069-OR	04/07/14	04/14/14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0	-	-	-	-
Total		T/PG			3	0	1	0	1	0	1	0	1	0	1	0	10	0	1	0	1	0	1	0	1	0	3	0	2	0	3	0	1	0	0	0	0	31		

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** February 12, 2014

**LDC Report Date:** April 10, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-52081-1

**Sample Identification**

RD-94\_021214\_01

RD-103(QA20)\_021214\_01

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

## III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
2/19/14	Methyl ethyl ketone	28.2	All samples in SDG 280-52081-1	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples TB\_RD-85\_021214 and TB\_RD-87\_021214 were identified as trip blanks. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RD-87_021214	2/12/14	Acetone	2.7 ug/L	RD-94_021214_01

Sample EB\_RD-07\_020714 (from SDG 280-51958-1) was identified as an equipment blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB_RD-07_020714	2/12/14	Acetone	2.0 ug/L	RD-94_021214_01

Sample FB\_021214\_19 was identified as a field blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB_021214_19	2/12/14	Chloroform	0.50 ug/L	RD-94_021214_01

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RD-94_021214_01	Acetone	6.3 ug/L	10U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since there were no associated samples, no data were qualified.

### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

### IX. Regional Quality Assurance and Quality Control

Not applicable.

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Target Compound Identifications

All target compound identifications were within validation criteria.

### XII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-52081-1	All compounds reported below the RLs.	J (all detects)	A

### XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

### XIV. System Performance

The system performance was acceptable.

### XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XVI. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-52081-1	RD-94_021214_01 RD-103(QA20)_021214_01	Methyl ethyl ketone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
280-52081-1	RD-94_021214_01 RD-103(QA20)_021214_01	All compounds reported below the RLs.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-52081-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-52081-1**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-52081-1	RD-94_021214_01	Acetone	10U ug/L	A	T, F

LDC #: 3161201a  
 SDG #: 280-52081-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/06/14  
 Page: 1 of 1  
 Reviewer: JVC  
 2nd Reviewer: JVC

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 2/12/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD ≤ 30/15% r <sup>2</sup>
IV.	Continuing calibration/ICV	SW	CV/ICV ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	RD-54A_021214_01 MC MSD (No acct'd sample, NA)
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	*TB = TB_RD-85_021214 (same SDG)
XVII.	Field blanks	SW	TB = TB_RD-87_021214 (same SDG) FB = FB_021214_19

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank  
 EB = EB\_RD-07\_020714 (280-51958-1)

Validated Samples:

Water

1	RD-94_021214_01	11	MB 280-213746/7	21		31
2	RD-103(QA20)_021214_01	12		22		32
3		13		23		33
4		14		24		34
5		15		25		35
6	/	16		26		36
7		17		27		37
8		18		28		38
9		19		29		39
10		20		30		40

**Method: Volatiles (EPA SW 846 Method 8260B)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?	/			
Did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?	/			
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $\geq 0.05$ ?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?		/		
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	/			
Was a MS/MSD analyzed every 20 samples of each matrix?	/			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		/		
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
<b>XI. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XII. Compound quantitation/RLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.	/			

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.



LDC #: 3161201C

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/12/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: 1

(Code: T)

Compound	Blank ID	Sample Identification							
	<u>FB_RD-87_02/1214</u>								
<u>F</u>	<u>2.7</u>		<u>6.3/10u</u>						

Blank units: ug/L Associated sample units: ug/L

Sampling date: 2/12/14 ; 2/07/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: 1

(Code: F)

Compound	<u>FB (2/12)</u> Blank ID	<u>EB (2/07)</u>	Sample Identification						
	<u>FB_021214_19</u>	<u>EB_RD-07_020714</u>							
<u>K</u>	<u>0.50</u>								
<u>F</u>		<u>2.0</u>	<u>6.3/10u</u>						

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

$\%RSD = 100 * (S/X)$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound

S = Standard deviation of the RRFs

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC MSV P	2/5/2014	Trichloroethene (FB)	0.2828	0.2828	0.2844	0.2844	4.3	4.3
			Tetrachloroethene (CBZ)	1.0073	1.0073	1.0102	1.0102	6.1	6.1
			1,1,2,2-TCA (DCB)	0.4834	0.4834	0.4852	0.4852	1.5	1.5



**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$$

Where:

ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

Ax = Area of compound

Cx = Concentration of compound,

Ais = Area of associated internal standard

Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
1	p7714 GC MSV P	2/19/2014	Trichloroethene (FB)	0.284	0.261	0.261	8.4	8.4
			Tetrachloroethene (CBZ)	1.010	0.958	0.958	5.1	5.1
			1,1,2,2-TCA (DCB)	0.485	0.478	0.478	1.4	1.4

LDC #: 31612 01a

## VALIDATION FINDINGS WORKSHEET Surrogate Results Verification

Page: 1 of 1

Reviewer: JVG

2nd reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	12.0	11.6	97	97	0
1,2-Dichloroethane-d4	↓	10.7	90	90	↓
Toluene-d8	↓	11.7	98	98	↓
Bromofluorobenzene	↓	11.1	92	92	↓

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 3161201a

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* SSC/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

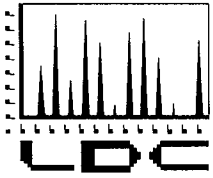
LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280-213746/6

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.00	NA	5.09	NA	102	102				
Trichloroethene	↓	↓	5.26	↓	105	105				
Benzene	↓	↓	5.26	↓	105	105				
Toluene	↓	↓	5.20	↓	104	104				
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 14, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 7, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project # 31612:

### Former LDC# SDG#

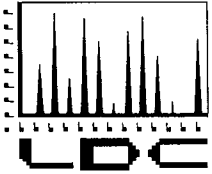
31307A\_280-51368-1  
31345A\_280-51416-1  
31345B\_280-51465-1  
31345D\_280-51539-1  
31361D\_280-51632-1  
31361E\_280-51633-1/H4B030412  
31361F\_280-51670-1/H4B030402  
31361G\_280-51767-1/H4B060406  
31380D\_280-51797-1  
31419B\_280-51958-1  
N/A\_280-51959-2  
31547D\_280-52030-1/14-02056-OR/14-02057-OR/14-02065-OR/14-02068-OR  
31438A\_280-52081-1  
31547E\_280-52126-1/14-02066-OR/14-02067-OR/14-02069-OR

### Fractions

Nitrate, Total Petroleum Hydrocarbons as Extractables, Semivolatiles, Polynuclear Aromatic Hydrocarbons, Formaldehyde, Perchlorate, 1,2,3-Trichloropropane, Wet Chemistry, Sulfide, Dioxins/Dibenzofurans, N-Nitrosodimethylamine, Volatiles, Strontium-90, Gross Alpha, Tritium

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009



- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA Contact Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Pei Geng' in a cursive style.

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** February 12, 2014  
**LDC Report Date:** April 10, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52126-1/14-02069-OR

**Sample Identification**

RD-85\_021214\_01  
RD-33A\_021214\_01



## Introduction

This data review covers 2 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52126-1/14-02069-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Data Qualification Summary - SDG 280-52126-1/14-02069-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52126-1/ 14-02069-OR	RD-85_021214_01 RD-33A_021214_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Laboratory Blank Data Qualification Summary - SDG 280-52126-1/14-02069-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Tritium - Field Blank Data Qualification Summary - SDG 280-52126-1/14-02069-OR**

No Sample Data Qualified in this SDG

LDC #: 31612P34 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-52126-1/14-02069-OR  
 Laboratory: Test America, Inc./Eberline Analytical Corporation

Level ~~X~~ | V

Date: 4-9-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>2-12-14</u>
II.	Initial calibration	<u>AW</u>	
III.	Calibration verification	<u>AW</u>	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	<u>DUP</u>
VI.	Laboratory control samples	A	<u>LCS</u>
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	<u>AW</u>	
IX.	Overall assessment of data	A	
X.	Field duplicates	<u>N</u>	
XI.	Field blanks	<u>N</u>	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	RD-85_021214_01	11		21		31	
2	RD-33A_021214_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	<u>PBW</u>	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

LDC #: 31612P34  
 SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:                     

Method: Radiochemistry (EPA Method 906.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil <u>(Water)</u> .		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31612 P34  
 SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer:                     

Validation Area	Yes	No	NA	Findings/Comments
<b>X. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 31612P34  
 SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

METHOD: Radiochemistry (Method: 906.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

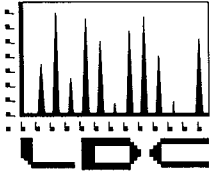
$RPD = \frac{|S-D|}{(S+D)/2} \times 100$       Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	H-3	6830 (pCi/L)	7190 (pCi/L)	95	95	Y
—	Matrix spike sample	—	—	—	—	—	—
LD-5 4A-021214-01 DUP	Duplicate RPD	H-3	357 (pCi/L)	356 <del>360</del> (pCi/L) 9mB	0.28	0.32	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.







# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 24, 2014

SUBJECT: Revised Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the revised validation report for the fractions listed below. Please replace the previously submitted report with the enclosed revised report.

**LDC Project #31612/31307:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
280-51368-1	Nitrate, Wet Chemistry

- Reject NO<sub>3</sub> result for RD-48B\_012114\_01

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** April 23, 2014

**Matrix:** Water

**Parameters:** Nitrate

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-48B\_012114\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

All samples were properly preserved with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
RD-48B_012114_01	Nitrate	Analysis was performed on preserved samples.	Analysis must be performed on an unpreserved aliquot.	J (all detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No nitrate was found in the initial, continuing and preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

### VIII. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51368-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

### IX. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
RD-48B_012114_01	Nitrate	R	A

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51368-1	RD-48B_012114_01	Nitrate	J (all detects)	P	Preservation (*I)
280-51368-1	RD-48B_012114_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)
280-51368-1	RD-48B_012114_01	Nitrate	R	A	Overall assessment of data (D)

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31612B6  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level IV

Date: 4-9-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: *[Signature]*

**METHOD:** Nitrate (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 1-21-14
II	Initial calibration	A <del>X</del>	
III.	Calibration verification	A <del>X</del>	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	client specified
VI.	Duplicates	N	" "
VII.	Laboratory control samples	A	LCS/LCSD
VIII.	Sample result verification	A <del>X</del>	
IX.	Overall assessment of data	SW A <del>X</del>	
X.	Field duplicates	N	
XI	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 Water

1	RD-48B_012114_01	11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	PBW	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Method: Inorganics (EPA Method 300.0)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil ( <u>Water</u> ).		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.			✓	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 31612B6

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	





LDC #: 3161236

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1

Reviewer: MG

2nd Reviewer: Q

**Method:** Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of NO<sub>3</sub>-N was recalculated. Calibration date: 1-14-14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc (ug/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	NO <sub>3</sub> -N	s1	0.2	5941360	0.9999	not reported	Y
		s2	0.5	15547038			
		s3	1	33180913			
		s4	4	139967689			
		s5	8	284386031			
		s6	10	358937269			
Calibration verification	NO <sub>3</sub> -N	<sup>1304</sup> CCV	4.83 (mg/L)	5.0 (mg/L)	97	96	↓
Calibration verification	—	—	—	—	—	—	—
Calibration verification	—	—	—	—	—	—	—

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31612B6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: [Signature]

METHOD: Inorganics, Method 300.0

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$     Where,    Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$     Where,    S = Original sample concentration  
 D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
<u>0952</u> <u>LCS</u>	Laboratory control sample	<u>NO<sub>3</sub></u>	<u>20.50 (mg/L)</u>	<u>22.1 (mg/L)</u>	<u>93</u>	<u>93</u>	<u>Y</u>
<u>-</u>	Matrix spike sample	<u>-</u>	(SSR-SR)	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
<u>-</u>	Duplicate sample	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** January 21, 2014

**LDC Report Date:** April 23, 2014

**Matrix:** Water

**Parameters:** Wet Chemistry

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-51368-1

**Sample Identification**

RD-06\_012114\_01  
RD-48B\_012114\_01  
RD-48C\_012114\_01  
RD-62\_012114\_01  
RD-61\_012114\_01  
RD-06\_012114\_01DUP



## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 350.1 for Ammonia-N, EPA Method 300.0 for Chloride, Fluoride and Nitrate and EPA SW 846 Method 9040B for pH.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
RD-06_012114_01	pH	61.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-48B_012114_01	pH	59.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-48C_012114_01	pH	57.25 hours	48 hours	J (all detects) UJ (all non-detects)	P
RD-06_012114_01DUP	pH	61.25 hours	48 hours	J (all detects) UJ (all non-detects)	P

All samples were properly preserved with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
RD-48B_012114_01	Nitrate	Analysis was performed on preserved samples.	Analysis must be performed on an unpreserved aliquot.	J (all detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-51368-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
RD-48B_012114_01	Nitrate	R	A

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Data Qualification Summary - SDG 280-51368-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01	pH	J (all detects) UJ (all non-detects)	P	Technical holding time (H)
280-51368-1	RD-48B_012114_01	Nitrate	J (all detects)	P	Preservation (*1)
280-51368-1	RD-06_012114_01 RD-48B_012114_01 RD-48C_012114_01 RD-62_012114_01 RD-61_012114_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)
280-51368-1	RD-48B_012114_01	Nitrate	R	A	Overall assessment of data (D)

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-51368-1**

No Sample Data Qualified in this SDG

LDC #: 31307A6  
 SDG #: 280-51368-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 2-19-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: 9

**METHOD:** Ammonia-N (EPA Method 350.1), Chloride, Fluoride, Nitrate (EPA Method 300.0), pH (EPA SW846 Method 9040B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: <u>1-21-14</u>
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	N	<u>client specified</u>
VI.	Duplicates	A	<u>DUP</u>
VII.	Laboratory control samples	A	<u>LCS/LCSD</u>
VIII.	Sample result verification	N	
IX.	Overall assessment of data	<u>SWA<sup>on</sup></u>	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
all water

1	RD-06_012114_01	11		21		31	
2	RD-48B_012114_01	12		22		32	
3	RD-48C_012114_01	13		23		33	
4	RD-62_012114_01	14		24		34	
5	RD-61_012114_01	15		25		35	
6	RD-06_012114_01DUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19	<u>PBW 1</u>	29		39	
10		20	<u>PBW 2</u>	30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



VALIDATION FINDINGS WORKSHEET  
Technical Holding Times

All circled dates have exceeded the technical holding time.

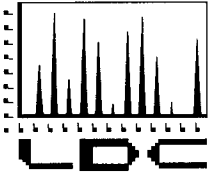
- N N/A Were all samples preserved as applicable to each method?
- N N/A Were all cooler temperatures within validation criteria?

Method:		9040B		300.0			
Parameters:		pH		NO <sub>3</sub>			
Technical holding time:		48 hr		48 hr			
Sample ID	Sampling date	Analysis date	Analysis date	Analysis date	Analysis date	Analysis date	Qualifier
1	09:40 1-21-14	23:01 1-23-14	(61.25 hr)				J/UJ/P (H)
2	11:39 1-21-14		(59.25 hr)				↓
3	13:45 1-21-14		(57.25 hr)				↓
6	09:40 1-21-14		(61.25 hr)				↓
2	11:39 1-21-14			21:09 1-23-14	(57.50 hr)		J/UJ/A (H)
2	sample was preserved (criteria = unpreserved) for NO <sub>3</sub>						Jdet P(I) E

(NO<sub>3</sub> is a reanalysis)







# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 22, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31689:

<u>SDG#</u>	<u>Fractions</u>
280-53611-1 280-54107-1	Volatiles, Metals, Nitrate

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** March 28, 2014

**LDC Report Date:** April 23, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-53611-1

**Sample Identification**

RD-30\_032814\_01  
RD-98\_032814\_01  
TB\_RD-98\_032814  
RS-28\_032814\_01

## Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Sample TB\_RD-98\_032814 was identified as a trip blank. No volatile contaminants were found.

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
TB_RD-98_032814	1,2-Dichloroethane-d4 Bromofluorobenzene Toluene-d8	123 (80-120) 121 (86-115) 123 (88-110)	All TCL compounds	J (all detects)	P

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-53611-1	All compounds reported below the RL.	J (all detects)	A

### **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

### **XIV. System Performance**

The system performance was acceptable.

### **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-53611-1**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-53611-1	TB_RD-98_032814	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
280-53611-1	RD-30_032814_01 RD-98_032814_01 TB_RD-98_032814 RS-28_032814_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-53611-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-53611-1**

No Sample Data Qualified in this SDG



LDC #: 31689A1a  
 SDG #: 280-53611-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level V

Date: 4/23/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/28/14
II.	GC/MS Instrument performance check	NA	
III.	Initial calibration	NA	% RSD ≤ 30/15% r <sup>2</sup>
IV.	Continuing calibration/ICV	NA	CCV/ICV ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	CS
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	NA	
XI.	Target compound identification	NA	
XII.	Compound quantitation/RL/LOQ/LODs	NA	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	NA	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 3

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

Water

1	RD-30_032814_01	11	MB 280-220088/6	21		31	
2	RD-98_032814_01	12		22		32	
3	TB_RD-98_032814	13		23		33	
4	RS-28_032814_01	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

**Method: Volatiles (EPA SW 846 Method 8260B)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?	/			
Did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?	/			
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $> 0.05$ ?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.			/	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?		/		
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?		/		
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?		/		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>X. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
<b>XI. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XII. Compound quantitation/RLs</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Tentatively identified compounds (TICs)</b>				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			/	
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XVI. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XVII. Field blanks</b>				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.		/		

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethane, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO. 1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.



**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

$\%RSD = 100 * (S/X)$

$A_x$  = Area of Compound

$C_x$  = Concentration of compound

S= Standard deviation of the RRFs

$A_{is}$  = Area of associated internal standard

$C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC MSV R2	2/20/2014	Trichloroethene (IS1)	0.3870	0.3870	0.3693	0.3693	4.4	4.4
			Tetrachloroethene (IS2)	1.3257	1.3257	1.2679	1.2679	4.9	4.9

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$$

Where:

ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 Ax = Area of compound

Cx = Concentration of compound,  
 Ais = Area of associated internal standard  
 Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
1	RR1548 GC MSV R2	4/7/2014	Trichloroethene (IS1)	0.3693	0.3779	0.3779	2.3	2.3
			Tetrachloroethene (IS2)	1.2679	1.2730	1.2730	0.4	0.4

LDC #: 31689 A1a

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	11.5	11.0	96	96	0
1,2-Dichloroethane-d4	↓	12.1	105	105	↓
Toluene-d8	↓	12.0	105	105	↓
Bromofluorobenzene	↓	11.7	102	102	↓

Sample ID: (12.5 x 0.92 ul = 11.5)

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					



LDC #: 31689 A1a

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* SSC/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280-220088 A

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.00	NA	5.07	NA	101	101				
Trichloroethene	↓	↓	5.34	↓	107	107				
Benzene	↓	↓	5.12	↓	102	102				
Toluene	↓	↓	5.31	↓	106	106				
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** March 28, 2014

**LDC Report Date:** April 24, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-53611-1

**Sample Identification**

RD-30\_032814\_01  
RD-98\_032814\_01  
RS-28\_032814\_01  
RD-30\_032814\_01F  
RD-98\_032814\_01F  
RS-28\_032814\_01F  
RD-30\_032814\_01MS  
RD-30\_032814\_01MSD  
RD-98\_032814\_01FMS  
RD-98\_032814\_01FMMSD

Samples appended with "F" were analyzed as dissolved

## Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010A for Metals. The metals analyzed were Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Tin, Vanadium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

ICP-MS was not utilized in this SDG.

## III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Antimony Silver Thallium	0.466 ug/L 0.0360 ug/L 0.105 ug/L	RD-30_032814_01 RD-98_032814_01 RS-28_032814_01
PB (prep blank)	Thallium	0.0000530 mg/L	RD-30_032814_01F RD-98_032814_01F RS-28_032814_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
RS-28_032814_01	Antimony Thallium	0.00057 mg/L 0.000082 mg/L	0.00057U mg/L 0.000082U mg/L
RD-30_032814_01F	Thallium	0.00018 mg/L	0.00018U mg/L
RS-28_032814_01F	Thallium	0.00023 mg/L	0.00023U mg/L

No field blanks were identified in this SDG.

#### V. ICP Interference Check Sample (ICS) Analysis

ICP interference check sample analyses were not required by this method.

#### VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

#### VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

#### VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

#### IX. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

#### X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

#### XI. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-53611-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

#### XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

#### XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-53611-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-53611-1	RD-30_032814_01 RD-98_032814_01 RS-28_032814_01 RD-30_032814_01F RD-98_032814_01F RS-28_032814_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-53611-1**

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
280-53611-1	RS-28_032814_01	Antimony Thallium	0.00057U mg/L 0.000082U mg/L	A	B
280-53611-1	RD-30_032814_01F	Thallium	0.00018U mg/L	A	B
280-53611-1	RS-28_032814_01F	Thallium	0.00023U mg/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-53611-1**

No Sample Data Qualified in this SDG

LDC #: 31689A4  
 SDG #: 280-53611-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level IV

Date: 4/23/14  
 Page: 1 of 1  
 Reviewer: CR  
 2nd Reviewer: Q

**METHOD:** Metals (EPA SW 846 Method 6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>3/28/14</u>
II.	ICP/MS Tune	N	
III.	Calibration	N	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	N	
VI.	Matrix Spike Analysis	A	MS/D
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	A	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-30_032814_01	11		21		31	
2	RD-98_032814_01	12		22		32	
3	RS-28_032814_01	13		23		33	
4	RD-30_032814_01F	14		24		34	
5	RD-98_032814_01F	15		25		35	
6	RS-28_032814_01F	16		26		36	
7	RD-30_032814_01MS	17		27		37	
8	RD-30_032814_01MSD	18		28		38	
9	RD-98_032814_01FMS	19		29		39	
10	RD-98_032814_01FMSD	20		30		40	

Notes: Samples appended with "F" were analyzed as dissolved



Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	/			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	/			
<b>III. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	/			
Were the proper number of standards used?	/			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	/			
Were all initial calibration correlation coefficients $> 0.995$ ?	/			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	/			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	/			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	/			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	/			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	/			
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $\leq 5X$ the RL.	/			
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	/			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Furnace Atomic Absorption QC</b>				
If MSA was performed, was the correlation coefficients > 0.995?			/	
Do all applicable analyses have duplicate injections? (Level IV only)			/	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			/	
Were analytical spike recoveries within the 85-115% QC limits?			/	
<b>IX. ICP Serial Dilution</b>				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL (ICP/MS)?	/			
Were all percent differences (%Ds) < 10%?	/			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.			/	
<b>X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	/			
If the %Rs were outside the criteria, was a reanalysis performed?			/	
<b>XI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
<b>XII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target analytes were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	



**VALIDATION FINDINGS WORKSHEET**  
**PB/ICB/CCB QUALIFIED SAMPLES**

**METHOD:** Trace metals (EPA SW 864 Method 6010B/6020/7000)

Soil preparation factor applied: \_\_\_\_\_

Reason: B

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 1-3

					Sample Identification												
Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/l)	Maximum ICB/CCB <sup>a</sup> (ug/l)	Action Level	3												
Sb			0.466	0.00233	0.00057												
Ag			0.0360	0.00018													
Tl			0.105	0.000525	0.000082												

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 4-6

					Sample Identification												
Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/l)	Maximum ICB/CCB <sup>a</sup> (ug/l)	Action Level	4	6											
Tl		0.0000530		0.000265	0.00018	0.00023											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 31689A4

## VALIDATION FINDINGS WORKSHEET

### Initial and Continuing Calibration Calculation Verification

Page: 1 of 1  
 Reviewer: GR  
 2nd Reviewer: Q

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated	Reported	Acceptable (Y/N)
					%R	%R	
	ICP (Initial calibration)						
ICV (16-57)	ICP/MS (Initial calibration)	Co	39.64	40	99	99	Y
	CVAA (Initial calibration)						
	ICP (Continuing calibration)						
CCV (21-14)	ICP/MS (Continuing calibration)	Be	50.64	50	101	101	Y
	CVAA (Continuing calibration)						
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31689A9

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: gr  
2nd Reviewer: Q

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$
 Where, I = Initial Sample Result (mg/L)  
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
ICSA B	ICP interference check (17:15)	Cu	95.98	<del>96.0</del> <sup>96.0</sup> <sub>100</sub>	96	96	Y ↓
LCS	Laboratory control sample	As	0.04173	0.0400	104	98 <sup>104</sup>	
7	Matrix spike	Cd	(SSR-SR) 0.0412	0.04	103	103	
7/8	Duplicate	Ni	44.25	44.01	1	1	
1	ICP serial dilution	Ba	48.49	48.55	0.12	0.12	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** March 28, 2014

**LDC Report Date:** April 24, 2014

**Matrix:** Water

**Parameters:** Nitrate

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-53611-1

**Sample Identification**

RD-30\_032814\_01

RS-28\_032814\_01



## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No nitrate was found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-53611-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Data Qualification Summary - SDG 280-53611-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-53611-1	RD-30_032814_01 RS-28_032814_01	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Laboratory Blank Data Qualification Summary - SDG 280-53611-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Field Blank Data Qualification Summary - SDG 280-53611-1**

No Sample Data Qualified in this SDG

LDC #: 31689A6  
 SDG #: 280-53611-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level IV

Date: 4/23/14  
 Page: 1 of 1  
 Reviewer: CL  
 2nd Reviewer: [Signature]

**METHOD:** Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>3/28/14</u>
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	A	
V.	Matrix Spike/Matrix Spike Duplicates	N	CS
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS/D
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples: water

1	RD-30_032814_01	11		21		31	
2	RS-28_032814_01	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method 8200)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	/			
Were the proper number of standards used?	/			
Were all initial calibration correlation coefficients > 0.995?	/			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	/			
Were titrant checks performed as required? (Level IV only)			/	
Were balance checks performed as required? (Level IV only)			/	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.			/	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			/	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL (≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.			/	
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	/			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		/	/	
Were the performance evaluation (PE) samples within the acceptance limits?		/	/	

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
Were detection limits < RL?	/			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target analytes were detected in the field duplicates.			/	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target analytes were detected in the field blanks.			/	

LDC #: 31689A6

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: a  
 2nd Reviewer: g

**Method:** Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of NO<sub>3</sub><sup>-</sup> was recalculated. Calibration date: 3/18/14

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	NO <sub>3</sub> <sup>-</sup>	s1	0.2	4887004	1.0000	NA	Y
		s2	0.5	14150241			
		s3	1	31377423			
		s4	4	137313256			
		s5	8	281091531			
		s6	10	351222026			
Calibration verification	↓	ICV	4	3,839	96	96	↓
Calibration verification	↓	CCV	5	507	101	101	↓
Calibration verification							

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

METHOD: Inorganics, Method Seecover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
 D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
<u>LCS</u>	Laboratory control sample	<u>NO<sub>3</sub>-N</u>	<u>5.10</u>	<u>5.00</u>	<u>102</u>	<u>102</u>	<u>Y</u>
	Matrix spike sample		(SSR-SR)				
	Duplicate sample						

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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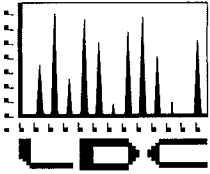


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## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 22, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31689:

<u>SDG#</u>	<u>Fractions</u>
280-53611-1	Volatiles, Metals, Nitrate
280-54107-1	

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** April 10, 2014

**LDC Report Date:** April 23, 2014

**Matrix:** Water

**Parameters:** Nitrate

**Validation Level:** Level V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-54107-1

**Sample Identification**

RD-48B\_041014\_01

RD-48B\_041014\_36

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 300.0 for Nitrate.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No nitrate was found in the preparation blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

## VI. Duplicates

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VIII. Sample Result Verification

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-54107-1	All analytes reported below the RL and above the MDL.	J (all detects)	A

Raw data were not reviewed for this SDG.

## **IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **X. Field Duplicates**

Samples RD-48B\_041014\_01 and RD-48B\_041014\_36 were identified as field duplicates. No nitrate was detected in any of the samples.



**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Data Qualification Summary - SDG 280-54107-1**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-54107-1	RD-48B_041014_01 RD-48B_041014_36	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Laboratory Blank Data Qualification Summary - SDG 280-54107-1**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Nitrate - Field Blank Data Qualification Summary - SDG 280-54107-1**

No Sample Data Qualified in this SDG

LDC #: 31689B6  
 SDG #: 280-54107-1  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level V

Date: 4/23/14  
 Page: 1 of 1  
 Reviewer: ca  
 2nd Reviewer: CL

**METHOD:** Nitrate-N (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

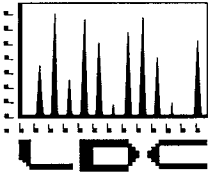
	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>4/10/14</u>
II	Initial calibration	N	
III.	Calibration verification	N	
IV	Blanks	A	
V	Matrix Spike/Matrix Spike Duplicates	N	CS
VI.	Duplicates	N	
VII.	Laboratory control samples	A	LCS/D
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	ND	(1,2)
XI	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples: water

1	RD-48B_041014_01	11		21		31	
2	RD-48B_041014_36	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 23, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

### LDC Project #31694:

#### SDG#

280-52740-1/14-03039-OR/14-03040-OR/14-03041-OR  
280-53681-1/14-03148-OR/14-03149-OR

#### Fractions

Gross Alpha & Beta, Radium-226, Radium-228, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Iodine-129, Carbon-14

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD Client Select IV		LDC #31694 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																									
LDC	SDG#	DATE REC'D	(3) DATE DUE	Gamma Spec. (901.1)		D.Gamma Spec. (901.1)		Am/Cm. (EiChro AM-01)		D.Alpha Spec. (AM-01)		Gross α&β (900.0)		D.Gross α&β (900.0)		Iso. Pu (HASL)		D.Iso. Pu (HASL)		Iso. U (HASL)		D. Iso. U (HASL)		Sr-90 (905.0)		Diss. Sr-90 (905.0)		Tritium (906.0)		Carbon -14 (AP-026)		Diss. Carbon -14		Iodine -129 (902.0)		D.Iodine -129 (902.0)							
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil																																											
A	280-52740-1/ 14-03039-OR/ 14-03040-OR/ 14-03041-OR	04/23/14	04/30/14	11	0	11	0	-	-	-	-	11	0	11	0	-	-	-	-	11	0	11	0	11	0	11	0	11	0	-	-	-	-	-	-	-	-	-	-	-	-		
B	280-53681-1/ 14-03148-OR/ 14-03149-OR	04/23/14	04/30/14	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	3	0	3	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
Total T/PG				12	0	12	0	1	0	1	0	12	0	12	0	1	0	1	0	12	0	12	0	14	0	14	0	12	0	1	0	1	0	1	0	1	0	1	0	1	0	1	120

EDD Client Select IV		LDC #31694 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																										
LDC	SDG#	DATE REC'D	(3) DATE DUE	Ra-226 (903.0)		Diss. Ra-226 (903.0)		Ra-228 (904.0)		Diss. Ra-228 (904.0)																																		
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S			
Matrix: Water/Soil																																												
A	280-52740-1/ 14-03039-OR/ 14-03040-OR	04/23/14	04/30/14	11	0	11	0	11	0	11	0																																	
Total T/PG				11	0	11	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 5, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level V  
**Laboratory:** TestAmerica Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52740-1/14-03039-OR/14-03040-OR

### Sample Identification

B4019_T01_030514_01SUS	B4019_T09_030514_01DIS
B4019_T02_030514_01SUS	B4019_T10_030514_01DIS
B4019_T03_030514_01SUS	B4019_T01_030514_01DISDUP
B4019_T04_030514_01SUS	B4019_T06_030514_01DISDUP
B4019_T05_030514_01SUS	
B4019_T05_030514_36SUS	
B4019_T06_030514_01SUS	
B4019_T07_030514_01SUS	
B4019_T08_030514_01SUS	
B4019_T09_030514_01SUS	
B4019_T10_030514_01SUS	
B4019_T01_030514_01DIS	
B4019_T02_030514_01DIS	
B4019_T03_030514_01DIS	
B4019_T04_030514_01DIS	
B4019_T05_030514_01DIS	
B4019_T05_030514_36DIS	
B4019_T06_030514_01DIS	
B4019_T07_030514_01DIS	
B4019_T08_030514_01DIS	

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 24 water samples listed on the cover sheet. The analyses were per EPA Method 900.0 for Gross Alpha and Beta Radioactivity.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross alpha	78 (80-120)	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS	J (all detects) UJ (all non-detects)	P

LCS ID	Isotope	%R (Limits)	Associated Samples	Flag	A or P
LCS	Gross alpha	75 (80-120)	B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	J (all detects) UJ (all non-detects)	P

### VII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### VIII. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52740-1/14-03039-OR/ 14-03040-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples B4019\_T05\_030514\_01SUS and B4019\_T05\_030514\_36SUS and samples B4019\_T05\_030514\_01DIS and B4019\_T05\_030514\_36DIS were identified as field duplicates. No gross alpha or beta was detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	B4019_T05_030514_01DIS	B4019_T05_030514_36DIS			
Gross alpha	-1.7U	6.0	358 (≤35)	NQ	-
Gross beta	140	160	13 (≤35)	-	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.



**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	Gross alpha	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-52740-  
1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

LDC #: 31694A22 **VALIDATION COMPLETENESS WORKSHEET**

Date: 4-23-14

SDG #: 280-52740-1/14-03039-OR/14-03040-OR Level V

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG

2nd Reviewer: 9

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	SW	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 5*6* D = 16+17
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
all water

1 <sup>1</sup>	B4019_T01_030514_01SUS	11 <sup>2</sup>	B4019_T10_030514_01SUS	21 <sup>2</sup>	B4019_T09_030514_01DIS	31	
2 <sup>1</sup>	B4019_T02_030514_01SUS	12 <sup>1</sup>	B4019_T01_030514_01DIS	22 <sup>2</sup>	B4019_T10_030514_01DIS	32	
3 <sup>1</sup>	B4019_T03_030514_01SUS	13 <sup>1</sup>	B4019_T02_030514_01DIS	23 <sup>1</sup>	B4019_T01_030514_01DISDUP	33	
4 <sup>1</sup>	B4019_T04_030514_01SUS	14 <sup>1</sup>	B4019_T03_030514_01DIS	24 <sup>2</sup>	B4019_T06_030514_01DISDUP	34	
5 <sup>1</sup>	B4019_T05_030514_01SUS	15 <sup>1</sup>	B4019_T04_030514_01DIS	25		35	
6 <sup>1</sup>	B4019_T05_030514_36SUS	16 <sup>1</sup>	B4019_T05_030514_01DIS	26		36	
7 <sup>2</sup>	B4019_T06_030514_01SUS	17 <sup>1</sup>	B4019_T05_030514_36DIS	27		37	
8 <sup>2</sup>	B4019_T07_030514_01SUS	18 <sup>2</sup>	B4019_T06_030514_01DIS	28		38	
9 <sup>2</sup>	B4019_T08_030514_01SUS	19 <sup>2</sup>	B4019_T07_030514_01DIS	29		39 <sup>1</sup>	PBW1
10 <sup>2</sup>	B4019_T09_030514_01SUS	20 <sup>2</sup>	B4019_T08_030514_01DIS	30		40 <sup>2</sup>	PBW2

Notes: "SUS" is particulate  
"DIS" is dissolved



VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Radiochemistry (900.0)

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	16	17		
Gross Alpha	-1.7U	6.0	358	No Qual.
Gross Beta	140	160	13	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 5, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Radium-226  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52740-1/14-03039-OR/14-03040-OR

### Sample Identification

B4019_T01_030514_01SUS	B4019_T09_030514_01DIS
B4019_T02_030514_01SUS	B4019_T10_030514_01DIS
B4019_T03_030514_01SUS	B4019_T01_030514_01DISDUP
B4019_T04_030514_01SUS	B4019_T06_030514_01DISDUP
B4019_T05_030514_01SUS	
B4019_T05_030514_36SUS	
B4019_T06_030514_01SUS	
B4019_T07_030514_01SUS	
B4019_T08_030514_01SUS	
B4019_T09_030514_01SUS	
B4019_T10_030514_01SUS	
B4019_T01_030514_01DIS	
B4019_T02_030514_01DIS	
B4019_T03_030514_01DIS	
B4019_T04_030514_01DIS	
B4019_T05_030514_01DIS	
B4019_T05_030514_36DIS	
B4019_T06_030514_01DIS	
B4019_T07_030514_01DIS	
B4019_T08_030514_01DIS	

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 24 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 903.0 for Radium-226.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:



Sample	Isotope	Flag	A or P
All samples in SDG 280-52740-1/14-03039-OR/ 14-03040-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples B4019\_T05\_030514\_01SUS and B4019\_T05\_030514\_36SUS and samples B4019\_T05\_030514\_01DIS and B4019\_T05\_030514\_36DIS were identified as field duplicates. No radium-228 was detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	B4019_T05_030514_01DIS	B4019_T05_030514_36DIS			
Radium-226	0.18	0.28	43 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.

**Boeing SSFL GW 1st Qtr 2013  
Radium-226 - Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52740-1/ 14-03039-IR/ 14-03040-OR	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2013  
Radium-226 - Laboratory Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2013  
Radium-226 - Field Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**METHOD:** Radium 226 (EPA Method 903.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	SW	D = 546* D = 16 + 17
XII.	Field blanks	N	

Note: A = Acceptable      \* = ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 all water

1	1	B4019_T01_030514_01SUS	11	2	B4019_T10_030514_01SUS	21	2	B4019_T09_030514_01DIS	31	
2	1	B4019_T02_030514_01SUS	12	1	B4019_T01_030514_01DIS	22	2	B4019_T10_030514_01DIS	32	
3	1	B4019_T03_030514_01SUS	13	1	B4019_T02_030514_01DIS	23	1	B4019_T01_030514_01DISDUP	33	
4	1	B4019_T04_030514_01SUS	14	1	B4019_T03_030514_01DIS	24	2	B4019_T06_030514_01DISDUP	34	
5	1	B4019_T05_030514_01SUS	15	1	B4019_T04_030514_01DIS	25			35	
6	1	B4019_T05_030514_36SUS	16	1	B4019_T05_030514_01DIS	26			36	
7	2	B4019_T06_030514_01SUS	17	1	B4019_T05_030514_36DIS	27			37	
8	2	B4019_T07_030514_01SUS	18	2	B4019_T06_030514_01DIS	28			38	
9	2	B4019_T08_030514_01SUS	19	2	B4019_T07_030514_01DIS	29			39	PBW1
10	2	B4019_T09_030514_01SUS	20	2	B4019_T08_030514_01DIS	30			40	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved

Method: Radiochemistry (903.0)

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	16	17		
Ra-226	0.18	0.28	43	No Qual.

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 5, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Radium-228  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52740-1/14-03039-OR/14-03040-OR

### Sample Identification

B4019_T01_030514_01SUS	B4019_T09_030514_01DIS
B4019_T02_030514_01SUS	B4019_T10_030514_01DIS
B4019_T03_030514_01SUS	B4019_T01_030514_01DISDUP
B4019_T04_030514_01SUS	B4019_T06_030514_01DISDUP
B4019_T05_030514_01SUS	
B4019_T05_030514_36SUS	
B4019_T06_030514_01SUS	
B4019_T07_030514_01SUS	
B4019_T08_030514_01SUS	
B4019_T09_030514_01SUS	
B4019_T10_030514_01SUS	
B4019_T01_030514_01DIS	
B4019_T02_030514_01DIS	
B4019_T03_030514_01DIS	
B4019_T04_030514_01DIS	
B4019_T05_030514_01DIS	
B4019_T05_030514_36DIS	
B4019_T06_030514_01DIS	
B4019_T07_030514_01DIS	
B4019_T08_030514_01DIS	

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 24 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 904.0 for Radium-228.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
B4019_T06_030514_01DIS	Radium-228	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	isotope	Flag	A or P
All samples in SDG 280-52740-1/14-03039-OR/14-03040-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

Samples B4019\_T05\_030514\_01SUS and B4019\_T05\_030514\_36SUS and samples B4019\_T05\_030514\_01DIS and B4019\_T05\_030514\_36DIS were identified as field duplicates. No radium-228 was detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	B4019_T05_030514_01DIS	B4019_T05_030514_36DIS			
Radium-228	0.072U	1.0	173 (≤35)	NQ	-

NQ = One or both results were < 5x the reporting limit, therefore no data were qualified.



**Boeing SSFL GW 1st Qtr 2014**

**Radium-226 - Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T06_030514_01DIS	Radium-228	R	A	Sample result verification (*IX)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Radium-226 - Laboratory Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Radium-226 - Field Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**METHOD:** Radium 228 (EPA Method 904.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates <i>9M</i>	<del>SW</del> A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification <i>9M</i>	<del>SW</del> X	
X.	Overall assessment of data	A	
XI.	Field duplicates	SW	D = 5*6* D = 16*+17
XII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

\* = ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:

*all water*

1	B4019_T01_030514_01SUS	11 <sup>2</sup>	B4019_T10_030514_01SUS	21 <sup>2</sup>	B4019_T09_030514_01DIS	31	
2	B4019_T02_030514_01SUS	12 <sup>1</sup>	B4019_T01_030514_01DIS	22 <sup>2</sup>	B4019_T10_030514_01DIS	32	
3	B4019_T03_030514_01SUS	13 <sup>1</sup>	B4019_T02_030514_01DIS	23 <sup>1</sup>	B4019_T01_030514_01DISDUP	33	
4	B4019_T04_030514_01SUS	14 <sup>1</sup>	B4019_T03_030514_01DIS	24 <sup>2</sup>	B4019_T06_030514_01DISDUP	34	
5	B4019_T05_030514_01SUS	15 <sup>1</sup>	B4019_T04_030514_01DIS	25		35	
6	B4019_T05_030514_36SUS	16 <sup>1</sup>	B4019_T05_030514_01DIS	26		36	
7	B4019_T06_030514_01SUS	17 <sup>1</sup>	B4019_T05_030514_36DIS	27		37	
8	B4019_T07_030514_01SUS	18 <sup>2</sup>	B4019_T06_030514_01DIS	28		38	
9	B4019_T08_030514_01SUS	19 <sup>2</sup>	B4019_T07_030514_01DIS	29		39 <sup>1</sup>	PBW1
10	B4019_T09_030514_01SUS	20 <sup>2</sup>	B4019_T08_030514_01DIS	30		40 <sup>2</sup>	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved



LDC: 31694A29b

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Page: 1 of 1

Reviewer: MG

Method: Radiochemistry (904.0)

2nd Reviewer:   

Analyte	Activity (pCi/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	16	17		
Ra-228	0.072U	1.0	173	No Qual

**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 5, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52740-1/14-03041-OR

**Sample Identification**

B4019\_T01\_030514\_01  
B4019\_T02\_030514\_01  
B4019\_T03\_030514\_01  
B4019\_T04\_030514\_01  
B4019\_T05\_030514\_01  
B4019\_T05\_030514\_36  
B4019\_T06\_030514\_01  
B4019\_T07\_030514\_01  
B4019\_T08\_030514\_01  
B4019\_T09\_030514\_01  
B4019\_T10\_030514\_01  
B4019\_T01\_030514\_01DUP

## Introduction

This data review covers 12 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52740-1/14-03041-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

### IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### X. Field Duplicates

Samples B4019\_T05\_030514\_01 and B4019\_T05\_030514\_36 were identified as field duplicates. No tritium was detected in any of the samples with the following exceptions:

Isotope	Activity (pCi/L)		RPD (Limits)	Flag	A or P
	B4019_T05_030514_01	B4019_T05_030514_36			
Tritium	23000	23000	0 ( $\leq 35$ )	-	-



**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-52740-1/14-03041-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52740-1/ 14-03041-OR	B4019_T01_030514_01 B4019_T02_030514_01 B4019_T03_030514_01 B4019_T04_030514_01 B4019_T05_030514_01 B4019_T05_030514_36 B4019_T06_030514_01 B4019_T07_030514_01 B4019_T08_030514_01 B4019_T09_030514_01 B4019_T10_030514_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-52740-1/14-03041-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-52740-1/14-03041-OR**

No Sample Data Qualified in this SDG

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	N	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 5+6
XI.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 all water

1	B4019_T01_030514_01	11	B4019_T10_030514_01	21		31	
2	B4019_T02_030514_01	12	B4019_T01_030514_01DUP	22		32	
3	B4019_T03_030514_01	13		23		33	
4	B4019_T04_030514_01	14		24		34	
5	B4019_T05_030514_01	15		25		35	
6	B4019_T05_030514_36	16		26		36	
7	B4019_T06_030514_01	17		27		37	
8	B4019_T07_030514_01	18		28		38	
9	B4019_T08_030514_01	19		29		39	
10	B4019_T09_030514_01	20		30		40	PBW

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Radiochemistry (906.0)

Analyte	Activity (pCi/L)		RPD (≤ 35)	Qualifiers (Parents Only)
	5	6		
Tritium	23000	23000	0	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 5, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52740-1/14-03039-OR/14-03040-OR

### Sample Identification

B4019_T01_030514_01SUS	B4019_T09_030514_01DIS
B4019_T02_030514_01SUS	B4019_T10_030514_01DIS
B4019_T03_030514_01SUS	B4019_T01_030514_01DISDUP
B4019_T04_030514_01SUS	B4019_T06_030514_01DISDUP
B4019_T05_030514_01SUS	
B4019_T05_030514_36SUS	
B4019_T06_030514_01SUS	
B4019_T07_030514_01SUS	
B4019_T08_030514_01SUS	
B4019_T09_030514_01SUS	
B4019_T10_030514_01SUS	
B4019_T01_030514_01DIS	
B4019_T02_030514_01DIS	
B4019_T03_030514_01DIS	
B4019_T04_030514_01DIS	
B4019_T05_030514_01DIS	
B4019_T05_030514_36DIS	
B4019_T06_030514_01DIS	
B4019_T07_030514_01DIS	
B4019_T08_030514_01DIS	

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 24 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Potassium-40	79 pCi/L	B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks with the following exceptions:

Sample	Isotope	Reported Activity	Modified Final Activity
B4019_T06_030514_01DIS	Potassium-40	100 pCi/L	100U pCi/L
B4019_T09_030514_01DIS	Potassium-40	200 pCi/L	200U pCi/L
B4019_T10_030514_01DIS	Potassium-40	69 pCi/L	69U pCi/L

No field blanks were identified in this SDG.

**V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

**VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

**VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

**VIII. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T01_030514_01DIS	Europium-152	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T01_030514_01DIS	Europium-152	Non-detect result is greater than the MDA.	R	A
B4019_T02_030514_01SUS	Europium-154	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
B4019_T02_030514_01SUS	Europium-154	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52740-1/14-03039-OR/ 14-03040-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

Samples B4019\_T05\_030514\_01SUS and B4019\_T05\_030514\_36SUS and samples B4019\_T05\_030514\_01DIS and B4019\_T05\_030514\_36DIS were identified as field duplicates. No gamma emitting radionuclides were detected in any of the samples with the following exceptions:

Isotope	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	B4019_T05_030514_01DIS	B4019_T05_030514_36DIS			
Potassium-40	190	180	5 (≤35)	-	-



**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T01_030514_01DIS	Europium-152	R	A	Sample result verification (*VIII)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T02_030514_01SUS	Europium-154	R	A	Sample result verification (*VIII)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

SDG	Sample	Isotope	Modified Final Concentration	A or P	Code
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T06_030514_01DIS	Potassium-40	100U pCi/L	A	B
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T09_030514_01DIS	Potassium-40	200U pCi/L	A	B
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T10_030514_01DIS	Potassium-40	69U pCi/L	A	B

**Boeing SSFL GW 1st Qtr 2014  
Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-52740-  
1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	SW	
IX.	Overall assessment of data	A	
X.	Field duplicates	SW	D = 5*6* D = 16+17
XI.	Field blanks	N	

Note: A = Acceptable      \* = ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinstate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
all water

1	B4019_T01_030514_01SUS	2	B4019_T10_030514_01SUS	21	B4019_T09_030514_01DIS	31	
2	B4019_T02_030514_01SUS	12	B4019_T01_030514_01DIS	22	B4019_T10_030514_01DIS	32	
3	B4019_T03_030514_01SUS	13	B4019_T02_030514_01DIS	23	B4019_T01_030514_01DISDUP	33	
4	B4019_T04_030514_01SUS	14	B4019_T03_030514_01DIS	24	B4019_T06_030514_01DISDUP	34	
5	B4019_T05_030514_01SUS	15	B4019_T04_030514_01DIS	25		35	
6	B4019_T05_030514_36SUS	16	B4019_T05_030514_01DIS	26		36	
7	B4019_T06_030514_01SUS	17	B4019_T05_030514_36DIS	27		37	
8	B4019_T07_030514_01SUS	18	B4019_T06_030514_01DIS	28		38	
9	B4019_T08_030514_01SUS	19	B4019_T07_030514_01DIS	29		39	PBW1
10	B4019_T09_030514_01SUS	20	B4019_T08_030514_01DIS	30		40	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved

**VALIDATION FINDINGS WORKSHEET**  
**Blanks**

**METHOD:** Radiochemistry, Method 901.1

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were blank analyses performed as required? If no, please see qualifications below.

N N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** 7-11,18-22 **Qual:** U (B)

Isotope	Blank ID	Blank Action Limit	Sample Identification											
			18	21	22									
	PB													
K-40	79	395	100	200	69									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".



LDC: 31694A35

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Page: 1 of 1

Reviewer: MG

2nd Reviewer:

Method: Radiochemistry (901.1)

Analyte	Activity (pCi/L)		RPD ( $\leq 35$ )	Qualifiers (Parents Only)
	16	17		
K-40	190	180	5	

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 5, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52740-1/14-03039-OR/14-03040-OR

### Sample Identification

B4019_T01_030514_01SUS	B4019_T09_030514_01DIS
B4019_T02_030514_01SUS	B4019_T10_030514_01DIS
B4019_T03_030514_01SUS	B4019_T01_030514_01DISDUP
B4019_T04_030514_01SUS	B4019_T06_030514_01DISDUP
B4019_T05_030514_01SUS	B4019_T06_030514_01SUSDUP
B4019_T05_030514_36SUS	
B4019_T06_030514_01SUS	
B4019_T07_030514_01SUS	
B4019_T08_030514_01SUS	
B4019_T09_030514_01SUS	
B4019_T10_030514_01SUS	
B4019_T01_030514_01DIS	
B4019_T02_030514_01DIS	
B4019_T03_030514_01DIS	
B4019_T04_030514_01DIS	
B4019_T05_030514_01DIS	
B4019_T05_030514_36DIS	
B4019_T06_030514_01DIS	
B4019_T07_030514_01DIS	
B4019_T08_030514_01DIS	

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 25 water samples listed on the cover sheet. The analyses were per EPA Method 908.0 for Isotopic Uranium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.



## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

Initial calibration data were not reviewed for Level V.

## III. Continuing Calibration

Continuing calibration data were not reviewed for Level V.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA) with the following exceptions:

Method Blank ID	Isotope	Activity	Associated Samples
PB (prep blank)	Uranium-238	0.083 pCi/L	B4019_T10_030514_01SUS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS

Sample activities were compared to activities detected in the method blanks. The sample activities were either not detected or were significantly greater (>5X blank activity) than the activities found in the associated method blanks.

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

All tracer recoveries were within validation criteria with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW1	Uranium-232	117.74 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
B4019_T01_030514_01DIS	Uranium-232	116.62 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
B4019_T02_030514_01DIS	Uranium-232	118.48 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
B4019_T03_030514_01DIS	Uranium-232	126.54 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
B4019_T04_030514_01DIS	Uranium-232	119.27 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
B4019_T05_030514_36SUS	Uranium-232	12.67 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
B4019_T07_030514_01SUS	Uranium-232	23.33 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A
B4019_T10_030514_01SUS	Uranium-232	116.70 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A

## VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

## IX. Sample Result Verification

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52740-1/14-03039-OR/14-03040-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XI. Field Duplicates**

Samples B4019\_T05\_030514\_01SUS and B4019\_T05\_030514\_36SUS and samples B4019\_T05\_030514\_01DIS and B4019\_T05\_030514\_36DIS were identified as field duplicates. No target radioactive analytes were detected in any of the samples.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_36SUS B4019_T07_030514_01SUS B4019_T10_030514_01SUS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	SW	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	N	
X.	Overall assessment of data	A	
XI.	Field duplicates	ND	D = 5+6      D = 16+17
XII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	B4019_T01_030514_01SUS	11 <sup>2</sup>	B4019_T10_030514_01SUS	21 <sup>2</sup>	B4019_T09_030514_01DIS	31	
2	B4019_T02_030514_01SUS	12 <sup>1</sup>	B4019_T01_030514_01DIS	22 <sup>2</sup>	B4019_T10_030514_01DIS	32	
3	B4019_T03_030514_01SUS	13 <sup>1</sup>	B4019_T02_030514_01DIS	23 <sup>1</sup>	B4019_T01_030514_01DISDUP	33	
4	B4019_T04_030514_01SUS	14 <sup>1</sup>	B4019_T03_030514_01DIS	24 <sup>2</sup>	B4019_T06_030514_01DISDUP	34	
5	B4019_T05_030514_01SUS	15 <sup>1</sup>	B4019_T04_030514_01DIS	25 <sup>3</sup>	# 7 DUP	35	
6	B4019_T05_030514_36SUS	16 <sup>1</sup>	B4019_T05_030514_01DIS	26		36	
7	B4019_T06_030514_01SUS	17 <sup>1</sup>	B4019_T05_030514_36DIS	27		37	
8	B4019_T07_030514_01SUS	18 <sup>2</sup>	B4019_T06_030514_01DIS	28		38	PBW
9	B4019_T08_030514_01SUS	19 <sup>2</sup>	B4019_T07_030514_01DIS	29		39	PBW
10	B4019_T09_030514_01SUS	20 <sup>2</sup>	B4019_T08_030514_01DIS	30		40	PBW

Notes: "SUS" is particulate  
 "DIS" is dissolved

## VALIDATION FINDINGS WORKSHEET

### Blanks

**METHOD:** Radiochemistry, Method 908.0

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y  N  N/A Were blank analyses performed as required? If no, please see qualifications below.

Y  N  N/A Were any activities in the blanks greater than the minimum detectable activity? If yes, please see qualifications below.

**Conc. units:** pCi/L

**Associated Samples:** 11,18-22 (>5x or ND)

Isotope	Blank ID	Blank Action Limit	Sample Identification												
	PB		No Qual's.												
U-238	0.083	0.415													

**CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:**

All contaminants within five times the method blank concentration were qualified as not detected, "U".



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 5, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level V  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-52740-1/14-03039-OR/14-03040-OR

**Sample Identification**

B4019_T01_030514_01SUS	B4019_T09_030514_01DIS
B4019_T02_030514_01SUS	B4019_T10_030514_01DIS
B4019_T03_030514_01SUS	B4019_T01_030514_01DISDUP
B4019_T04_030514_01SUS	B4019_T06_030514_01DISDUP
B4019_T05_030514_01SUS	
B4019_T05_030514_36SUS	
B4019_T06_030514_01SUS	
B4019_T07_030514_01SUS	
B4019_T08_030514_01SUS	
B4019_T09_030514_01SUS	
B4019_T10_030514_01SUS	
B4019_T01_030514_01DIS	
B4019_T02_030514_01DIS	
B4019_T03_030514_01DIS	
B4019_T04_030514_01DIS	
B4019_T05_030514_01DIS	
B4019_T05_030514_36DIS	
B4019_T06_030514_01DIS	
B4019_T07_030514_01DIS	
B4019_T08_030514_01DIS	

Samples ending in "SUS" were reported for particulate only  
Samples ending in "DIS" were reported for dissolved only



## Introduction

This data review covers 24 water samples listed on the cover sheet. The analyses were per EPA Method 905.0 for Strontium-90.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration data were not reviewed for Level V.

## **III. Continuing Calibration**

Continuing calibration data were not reviewed for Level V.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

All carrier recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
B4019_T05_030514_01DIS	Strontium-90	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-52740-1/14-03039-OR/ 14-03040-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Strontium-90 - Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T05_030514_01DIS	Strontium-90	R	A	Sample result verification (*IX)
280-52740-1/ 14-03039-OR/ 14-03040-OR	B4019_T01_030514_01SUS B4019_T02_030514_01SUS B4019_T03_030514_01SUS B4019_T04_030514_01SUS B4019_T05_030514_01SUS B4019_T05_030514_36SUS B4019_T06_030514_01SUS B4019_T07_030514_01SUS B4019_T08_030514_01SUS B4019_T09_030514_01SUS B4019_T10_030514_01SUS B4019_T01_030514_01DIS B4019_T02_030514_01DIS B4019_T03_030514_01DIS B4019_T04_030514_01DIS B4019_T05_030514_01DIS B4019_T05_030514_36DIS B4019_T06_030514_01DIS B4019_T07_030514_01DIS B4019_T08_030514_01DIS B4019_T09_030514_01DIS B4019_T10_030514_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Strontium-90 - Field Blank Data Qualification Summary - SDG 280-52740-1/14-03039-OR/14-03040-OR**

No Sample Data Qualified in this SDG

**METHOD: Strontium-90 (EPA Method 905.0)**

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-5-14
II.	Initial calibration	N	
III.	Calibration verification	N	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	SW	
X.	Overall assessment of data	A	
XI.	Field duplicates	ND	D = 5+6      D = 16+17
XII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

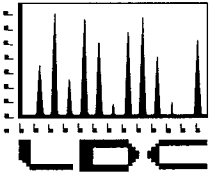
D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1 <sup>1</sup>	B4019_T01_030514_01SUS	11 <sup>2</sup>	B4019_T10_030514_01SUS	21 <sup>2</sup>	B4019_T09_030514_01DIS	31	
2 <sup>1</sup>	B4019_T02_030514_01SUS	12 <sup>1</sup>	B4019_T01_030514_01DIS	22 <sup>2</sup>	B4019_T10_030514_01DIS	32	
3 <sup>1</sup>	B4019_T03_030514_01SUS	13 <sup>1</sup>	B4019_T02_030514_01DIS	23 <sup>1</sup>	B4019_T01_030514_01DISDUP	33	
4 <sup>1</sup>	B4019_T04_030514_01SUS	14 <sup>1</sup>	B4019_T03_030514_01DIS	24 <sup>2</sup>	B4019_T06_030514_01DISDUP	34	
5 <sup>1</sup>	B4019_T05_030514_01SUS	15 <sup>1</sup>	B4019_T04_030514_01DIS	25		35	
6 <sup>1</sup>	B4019_T05_030514_36SUS	16 <sup>1</sup>	B4019_T05_030514_01DIS	26		36	
7 <sup>2</sup>	B4019_T06_030514_01SUS	17 <sup>1</sup>	B4019_T05_030514_36DIS	27		37	
8 <sup>2</sup>	B4019_T07_030514_01SUS	18 <sup>2</sup>	B4019_T06_030514_01DIS	28		38	
9 <sup>2</sup>	B4019_T08_030514_01SUS	19 <sup>2</sup>	B4019_T07_030514_01DIS	29		39 <sup>1</sup>	PBW1
10 <sup>2</sup>	B4019_T09_030514_01SUS	20 <sup>2</sup>	B4019_T08_030514_01DIS	30		40 <sup>2</sup>	PBW2

Notes: "SUS" is particulate  
 "DIS" is dissolved





# LABORATORY DATA CONSULTANTS, INC.

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MWH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

April 28, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on April 23, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project #31694:

### SDG#

280-52740-1/14-03039-OR/14-03040-OR/14-03041-OR  
280-53681-1/14-03148-OR/14-03149-OR

### Fractions

Gross Alpha & Beta, Radium-226, Radium-228, Tritium, Gamma Spectroscopy, Isotopic Uranium, Strontium-90, Americium & Curium, Isotopic Plutonium, Iodine-129, Carbon-14

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

EDD		Client Select IV		LDC #31694 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																					
LDC	SDG#	DATE REC'D	(3) DATE DUE	Gamma Spec. (901.1)		D.Gamma Spec. (901.1)		Am/Cm. (EiChro AM-01)		D.Alpha Spec. (AM-01)		Gross α&β (900.0)		D.Gross α&β (900.0)		Iso. Pu (HASL)		D.Iso. Pu (HASL)		Iso. U (HASL)		D. Iso. U (HASL)		Sr-90 (905.0)		Diss. Sr-90 (905.0)		Tritium (906.0)		Carbon -14 (AP-026)		Diss. Carbon -14		Iodine -129 (902.0)		D.Iodine -129 (902.0)					
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
A	280-52740-1/ 14-03039-OR/ 14-03040-OR/ 14-03041-OR	04/23/14	04/30/14	11	0	11	0	-	-	-	-	11	0	11	0	-	-	-	-	11	0	11	0	11	0	11	0	11	0	11	0	-	-	-	-	-	-	-	-		
B	280-53681-1/ 14-03148-OR/ 14-03149-OR	04/23/14	04/30/14	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	3	0	3	0	1	0	1	0	1	0	1	0	1	0	1	0		
Total				T/PG				12	0	12	0	1	0	1	0	12	0	12	0	1	0	1	0	12	0	12	0	14	0	14	0	12	0	1	0	1	0	1	0	1	120

EDD		Client Select IV		LDC #31694 (MWH Americas, Inc.-Farmington Hills, MI / Boeing SSFL GW 1 <sup>st</sup> Qtr 2014)																																						
LDC	SDG#	DATE REC'D	(3) DATE DUE	Ra-226 (903.0)		Diss. Ra-226 (903.0)		Ra-228 (904.0)		Diss. Ra-228 (904.0)																																
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S			
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	
A	280-52740-1/ 14-03039-OR/ 14-03040-OR	04/23/14	04/30/14	11	0	11	0	11	0	11	0																															
Total				T/PG				11	0	11	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44

Shaded cells indicate Level IV validation (all other cells are Level V validation). These sample counts do not include MS/MSD, and DUPs



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Gross Alpha & Beta  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

**Sample Identification**

RD-98\_032814\_01SUS  
RD-98\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 900.0 for Gross Alpha & Beta.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/14-03148-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

<b>SDG</b>	<b>Sample</b>	<b>Isotope</b>	<b>Flag</b>	<b>A or P</b>	<b>Reason (Code)</b>
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS RD-98_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gross Alpha & Beta - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

mg

**METHOD:** Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	Ax	
III.	Calibration verification	Ax	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	Ax	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 Water

1	RD-98_032814_01SUS	11		21		31	
2	RD-98_032814_01DIS	12		22		32	
3	RD-98_032814_01DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved

**Method: Radiochemistry (EPA Method 900.0 )**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water.</u>		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694B22  
 SDG #:           

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer:           

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31694B22

SDG #: \_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer:     

METHOD: Radiochemistry (Method: 900.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Gross Alpha	254 (pci/L)	311 (pci/L)	81.67	81.61	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	Gross Beta	64.7 (pci/L)	61.5 (pci/L)	5.07	5.02	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Tritium  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03149-OR

**Sample Identification**

RD-98\_032814\_01  
RD-98\_032814\_01DUP

## Introduction

This data review covers 2 water samples listed on the cover sheet. The analyses were per EPA Method 906.0 for Tritium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) analyses were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/14-03149-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**IX. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**X. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Data Qualification Summary - SDG 280-53681-1/14-03149-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-53681-1/ 14-03149-OR	RD-98_032814_01	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03149-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Tritium - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03149-OR**

No Sample Data Qualified in this SDG

**METHOD:** Tritium (EPA Method 906.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	Ax	
III.	Calibration verification	Ax	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	Ax	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 water

1	RD-98_032814_01	11		21		31	
2	RD-98_032814_01DUP	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



LDC #: 31694B34  
 SDG #: \_\_\_\_\_

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: Q

Method: Radiochemistry(EPA Method 906.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694 B34  
 SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: CF

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 31694B34

SDG #: \_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer: Q

METHOD: Radiochemistry (Method: 906.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	H-3	6260 (pCi/L)	7100 (pCi/L)	88.17	88.22	Y
-	Matrix spike sample	-	-	-	-	-	-
2	Duplicate RPD	H-3	0.0 u (pCi/L)	0.0 u (pCi/L)	0.00	0.00	Y
-	Chemical recovery	-	-	-	-	-	-

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 28, 2014  
**Matrix:** Water  
**Parameters:** Gamma Spectroscopy  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./Eberline Analytical Corporation  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

**Sample Identification**

RD-98\_032814\_01SUS  
RD-98\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 901.1 for Gamma Spectroscopy.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **VIII. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
PBW	Europium-152	The isotope was reported from the "Non-Identified Nuclides" report from a pseudo calculation.	R	A
PBW	Europium-152	Non-detect result is greater than the MDA.	R	A
RD-98_032814_01SUS PBW	Europium-154	The isotope was reported from the "Non-Identified Nuclides" report from a pseudo calculation.	R	A
PBW	Europium-154	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/14-03148-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

## IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## X. Field Duplicates

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Data Qualification Summary - SDG 280-5361-1/14-03148-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-5361-1/ 14-03148-OR	RD-98_032814_01SUS	Europium-154	R	A	Sample result verification (*VIII)
280-5361-1/ 14-03148-OR	RD-98_032814_01SUS RD-98_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Laboratory Blank Data Qualification Summary - SDG 280-5361-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Gamma Spectroscopy - Field Blank Data Qualification Summary - SDG 280-5361-1/14-03148-OR**

No Sample Data Qualified in this SDG

LDC #: 31694B35 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-53681-1 / 14-03148-OR Level ~~V~~ IV

Laboratory : Test America, Inc./Eberline Analytical Corporation

MA

Date: 4-24-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer:

**METHOD:** Gamma Spectroscopy (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	A <del>X</del>	
III.	Calibration verification	A <del>X</del>	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	SW <del>X</del>	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
water

1	RD-98_032814_01SUS	11		21		31	
2	RD-98_032814_01DIS	12		22		32	
3	RD-98_032814_01DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved

LDC #: 31694B35  
 SDG #:           

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:           

Method: Radiochemistry(EPA Method 901.1 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD, or MS/DUP. Soil (Water)		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694 B35  
SDG #:           

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer:           

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31694 B35

SDG #: \_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer: Q

METHOD: Radiochemistry (Method: 901.1)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Cs-137	130000 (pCi/L)	124000 (pCi/L)	104.84	104.52	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	K-40	26.2 u (pCi/L)	24.3 u (pCi/L)	7.52	7.58	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Americium & Curium  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

**Sample Identification**

RD-98\_032814\_01SUS  
RD-98\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per Method EiChrom AM-01 for Americium and Curium.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

All tracer recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-98_032814_01SUS	Curium-245/246	Non-detect result is greater than the MDA	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/14-03148-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

### **XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS	Curium-245/246	R	A	Sample result verification (*IX)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS RD-98_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014**

**Americium & Curium - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

LDC #: 31694B36

**VALIDATION COMPLETENESS WORKSHEET**

Date: 4-24-14

SDG #: 280-53681-1/14-03148-OR

Level ~~V~~ IV

Page: 1 of 1

Laboratory: Test America, Inc./Eberline Analytical Corporation

Reviewer: MG

2nd Reviewer: [Signature]

Isotopic Americium and Curium

9/14

METHOD: Alpha Spectroscopy (Method EiChrom Am-01)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	A ✓	
III.	Calibration verification	A ✓	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	SW ✓	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	
	Tracer	A	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 water

1	RD-98_032814_01SUS	11		21		31	
2	RD-98_032814_01DIS	12		22		32	
3	RD-98_032814_01DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved

LDC #: 31694B36  
 SDG #: \_\_\_\_\_

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: 9

Method: Radiochemistry (EPA Method Ei Chrom) Am-01

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil <u>(Water)</u> .		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?	✓			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?				✓
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694B36  
 SDG #:                     

**VALIDATION FINDINGS CHECKLIST**

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer:                     

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	





LDC #: 31694B36

SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer:                     METHOD: Radiochemistry (Method: Ei Chrom Am-01)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Cm-244	4.68 (pci/L)	4.38 (pci/L)	106.85	106.86	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	Am-241	0.170 u (pci/L)	0.102 u (pci/L)	50.00	49.90	Y
1	Chemical recovery	Am-243	12.399 (dpm)	13.50 (dpm)	91.84	91.23	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Uranium  
**Validation Level:** Level IV  
**Laboratory:** EMAX Laboratories, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

### Sample Identification

RD-98\_032814\_01SUS  
RD-98\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 908.0 for Isotopic Uranium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. Initial Calibration

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## III. Continuing Calibration

Continuing calibration and background determination was performed at the required frequencies.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## V. Matrix Spike/Matrix Spike Duplicates/Duplicates

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## VII. Tracer Recovery

Tracer recoveries (%R) were within QC limits with the following exceptions:

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
PBW	Uranium-232	113.18 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	P

Sample ID	Tracer Isotope	%R (Limits)	Affected Isotope	Flag	A or P
RD-98_032814_01DISDUP	Uranium-232	111.45 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	P
RD-98_032814_01SUS	Uranium-232	111.02 (30-110)	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	P

### VIII. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

### IX. Sample Result Verification

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/14-03148-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

### X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

### XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS	Uranium-233/234 Uranium-235 Uranium-238	J (all detects) UJ (all non-detects)	A	Tracer recovery (*VII)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS RD-98_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Uranium - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Uranium (EPA Method 908.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	A✓	
III.	Calibration verification	A✓	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Tracer Recovery	SW	
VIII.	Minimum Detectable Activity (MDA)	A	
IX.	Sample result verification	A✓	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
*water*

1	RD-98_032814_01SUS	11		21		31	
2	RD-98_032814_01DIS	12		22		32	
3	RD-98_032814_01DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	<i>PBW</i>	40	

Notes: "SUS" is particulate  
"DIS" is dissolved



Method: Radiochemistry (EPA Method 908.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%?	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits? <u>9MA</u>	✓	✓		
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694B59  
 SDG #:                     

**VALIDATION FINDINGS CHECKLIST**

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer:                     

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31694B59  
 SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

METHOD: Radiochemistry (Method: 908.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	U-234	7.23 (pci/L)	8.06 (pci/L)	89.70	89.69	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	U-238	1.85 (pci/L)	1.62 (pci/L)	13.26	12.80	Y
1	Chemical recovery	U-232	12.605 (dpm)	11.4 (dpm)	110.57	111.02	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Strontium-90  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

**Sample Identification**

RD-30\_032814\_01SUS  
RD-98\_032814\_01SUS  
RS-28\_032814\_01SUS  
RD-30\_032814\_01DIS  
RD-98\_032814\_01DIS  
RS-28\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 7 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 905.0 for Strontium-90

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

A matrix spike (MS) analysis was not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Carrier Recovery**

Carrier recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable.



All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/14-03148-OR/	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-53681-1/ 14-03148-OR	RD-30_032814_01SUS RD-98_032814_01SUS RS-28_032814_01SUS RD-30_032814_01DIS RD-98_032814_01DIS RS-28_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Strontium-90 - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

9/1/14

**METHOD:** Strontium-90 (EPA Method 905.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	A $\checkmark$	
III.	Calibration verification	A $\checkmark$	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Carrier recovery	A	
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	A $\checkmark$	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

Validated Samples:  
 all water

1	RD-30_032814_01SUS	11		21		31	
2	RD-98_032814_01SUS	12		22		32	
3	RS-28_032814_01SUS	13		23		33	
4	RD-30_032814_01DIS	14		24		34	
5	RD-98_032814_01DIS	15		25		35	
6	RS-28_032814_01DIS	16		26		36	
7	RD-98_032814_01DISDUP	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved

LDC #: 31694B61  
 SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:                     

Method: Radiochemistry(EPA Method 905.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil <u>Water</u>		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?	✓			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694 B61  
SDG #:       

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
IX Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XI Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 31694 B61  
 SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

METHOD: Radiochemistry (Method: 905.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Sr-90	54.7 (pCi/L)	46.0 (pCi/L)	118.91	119.00	Y
—	Matrix spike sample	—	—	—	—	—	—
7	Duplicate RPD	Sr-90	32.9 (pCi/L)	24.7 (pCi/L)	28.47	28.47	Y
1	Chemical recovery	Sr	0.0116 (g)	0.0119 (g)	97.48	97.54	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31694B61  
 SDG #:     

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd reviewer:     

METHOD: Radiochemistry (Method: 905.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments?

Analyte results for #5, Sr-90 reported with a positive detect were recalculated and verified using the following equation:

Activity =  $Y-90 \text{ ing} = 189.50 \text{ hr}$   
 $Y-90 \text{ decay} = 4.08 \text{ hr}$  (to mid count) Recalculation:

$$\frac{(\text{cpm} - \text{bckgrd cpm})}{(2.22)(E)(\text{Vol})(CF)} \times \frac{1}{0.871116} \times \frac{1}{0.956846} = 32.893 \text{ pCi/L}$$

$$\frac{(3192/120) - (1.267)}{(2.22)(0.45)(1.000 \text{ L})(0.9249)} \times \frac{1}{0.871116} \times \frac{1}{0.956846} = 32.893 \text{ pCi/L}$$

E = Efficiency  
 Vol = Volume  
 CF = %R, Self-absorbance, abundance, ect.

#	Sample ID	Analyte	Reported Concentration (pCi/L)	Calculated Concentration (pCi/L)	Acceptable (Y/N)
1	1	Sr-90	0.81	0.81	Y
2	2	Sr-90	1.4	1.4	
3	3	Sr-90	13	13	
4	5	Sr-90	33	33	
5	6	Sr-90	2.5	2.5	↓

Note: sample # 4 is N.D.

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Isotopic Plutonium  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

### Sample Identification

RD-98\_032814\_01SUS  
RD-98\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only



## Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per DOE EML HASL-300 for Isotopic Plutonium

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates/Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VI. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VII. Tracer Recovery**

All tracer recoveries were within validation criteria.

## **VIII. Minimum Detectable Activity (MDA)**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable.

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/ 14-03148-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

## X. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XI. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS RD-98_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Isotopic Plutonium - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**METHOD:** Isotopic Plutonium (DOE EML HASL-300)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Minimum detectable activity (MDA)	A	
VIII.	Sample result verification	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	
XII.	Tracer	A	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 water

1	RD-98_032814_01SUS	11		21		31	
2	RD-98_032814_01DIS	12		22		32	
3	RD-98_032814_01DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved

LDC #: 31694B67  
 SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: CF

Method: Radiochemistry (EPA Method DOE EML) HASL - 300

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u> .		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?	✓			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694B67  
 SDG #: —

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
<b>IX. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 31694 B67

SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer:                     METHOD: Radiochemistry (Method: DOE EML HASL-300)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	Pu-238	4.75 (pCi/L)	4.62 (pCi/L)	102.81	102.81	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	Pu-239	0.0137u (pCi/L)	0.0515u (pCi/L)	115.95	116.07	Y
1	Chemical recovery	Pu-242	9.352 (dpm)	8.87 (dpm)	105.43	105.50	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Iodine-129  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

### Sample Identification

RD-98\_032814\_01SUS  
RD-98\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per EPA Method 902.0 for Iodine-129.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Carrier Recovery**

All tracer recoveries were within validation criteria.

## **IX. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

**X. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Isotope	Finding	Flag	A or P
RD-98_032814_01SUS RD-98_032814_01DISDUP PBW	Iodine-129	The isotope was reported from the "Non-identified nuclides" report from a pseudo calculation.	R	A
RD-98_032814_01SUS RD-98_032814_01DISDUP PBW	Iodine-129	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG280-53681-1/14-03148-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Iodine-129 - Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS	Iodine-129	R	A	Sample result verification (**X)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS RD-98_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Iodine-129 - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Iodine-129 - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

LDC #: 31694B69 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-53681-1/14-03148-OR

Level ~~V~~ IV

Laboratory: Test America, Inc./Eberline Analytical Corporation

gmh.

Date: 4-24-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Iodine-129 (EPA Method 902.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	A <del>x</del>	
III.	Calibration verification	A <del>x</del>	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	N	not required
VI.	Duplicate	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	SW <del>x</del>	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	
XIII.	Carrier	A	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
 att water

1	RD-98_032814_01SUS	11		21		31	
2	RD-98_032814_01DIS	12		22		32	
3	RD-98_032814_01DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
 "DIS" is dissolved

LDC #: 31694B69  
 SDG #:                     

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:                     

Method: Radiochemistry (EPA Method 902.0 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / <u>Water</u>		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?	✓			
Were tracer/carrier recoveries within the QC limits?	✓			
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			



LDC #: 31694B69  
 SDG #: —

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: CF

Validation Area	Yes	No	NA	Findings/Comments
<b>IX: Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X: Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI: Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31694B69

SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

METHOD: Radiochemistry (Method: 902.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	I-129	493 (pci/L)	456 (pci/L)	108.11	108.20	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	I-129	0.391 U (pci/L)	1.11 U (pci/L)	95.80	96.14	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** March 28, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Carbon-14  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc./Eberline Analytical  
**Sample Delivery Group (SDG):** 280-53681-1/14-03148-OR

**Sample Identification**

RD-98\_032814\_01SUS  
RD-98\_032814\_01DIS  
RD-98\_032814\_01DISDUP

Samples ending in "DIS" were reported for dissolved only  
Samples ending in "SUS" were reported for particulate only

## Introduction

This data review covers 3 water samples listed on the cover sheet. The analyses were per Method AP-026 for Carbon-14.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the isotope was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the isotope was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Detector efficiency was determined for each radionuclide of interest.

## **III. Continuing Calibration**

Continuing calibration and background determination was performed at the required frequencies.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

## **V. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) analysis were not required by the method.

## **VI. Duplicates**

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

## **VII. Laboratory Control Samples**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## **VIII. Minimum Detectable Activity**

All minimum detectable activities met required detection limits.

## **IX. Sample Result Verification**

All sample result verifications were acceptable with the following exceptions:

Sample	Compound	Reason	Flag	A or P
RD-98_032814_01DISDUP	Carbon-14	Non-detect result is greater than the MDA.	R	A

All isotopes reported below the RL and above the MDA were qualified as follows:

Sample	Isotope	Flag	A or P
All samples in SDG 280-53681-1/14-03148-OR	All isotopes reported below the RL and above the MDA.	J (all detects)	A

Raw data were not reviewed for this SDG.

#### **X. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

#### **XI. Field Duplicates**

No field duplicates were identified in this SDG.



**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

SDG	Sample	Isotope	Flag	A or P	Reason (Code)
280-53681-1/ 14-03148-OR	RD-98_032814_01SUS RD-98_032814_01DIS	All isotopes reported below the RL and above the MDA.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Laboratory Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Carbon-14 - Field Blank Data Qualification Summary - SDG 280-53681-1/14-03148-OR**

No Sample Data Qualified in this SDG

LDC #: 31694B77 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-53681-1/14-03148-OR Level  $\checkmark$  IV

Laboratory: Test America, Inc./Eberline Analytical Corporation

9m4

Date: 4-24-14

Page: 1 of 1

Reviewer: MG

2nd Reviewer:                     

**METHOD:** Carbon-14 (Method AP-026)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-28-14
II.	Initial calibration	A $\checkmark$	
III.	Calibration verification	A $\checkmark$	
IV.	Blanks	A	
V.	Matrix Spike/(Matrix Spike) Duplicates	N	not required
VI.	Duplicate	A	DUP
VII.	Laboratory control samples	A	LCS
VIII.	Minimum detectable activity (MDA)	A	
IX.	Sample result verification	SW $\checkmark$	
X.	Overall assessment of data	A	
XI.	Field duplicates	N	
XII.	Field blanks	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

Validated Samples:  
water

1	RD-98_032814_01SUS	11		21		31	
2	RD-98_032814_01DIS	12		22		32	
3	RD-98_032814_01DISDUP	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30	PBW	40	

Notes: "SUS" is particulate  
"DIS" is dissolved

LDC #: 31694B77  
 SDG #:         

**VALIDATION FINDINGS CHECKLIST**

Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:   

**Method: Radiochemistry (EPA Method AP-026)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil (Water)		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) $\leq 1.42$ ?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) $< RL$ ?	✓			

LDC #: 31694 B77  
SDG #: -

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
<b>IX: Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>X: Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XI: Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	



LDC #: 31694B77

SDG #: —

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1

Reviewer: MG

2nd Reviewer: Q

METHOD: Radiochemistry (Method: AP-026)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

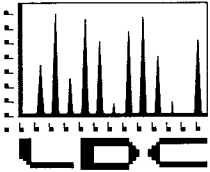
$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R or RPD	%R or RPD	
LCS	Laboratory control sample	C-14	1340 (pci/L)	1420 (pci/L)	94.37	94.79	Y
—	Matrix spike sample	—	—	—	—	—	—
3	Duplicate RPD	C-14	4.08 u (pci/L)	8.16 u (pci/L)	66.67	66.56	Y
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

MVH Americas, Inc.  
618 Michillinda Ave. Suite 200  
Arcadia, CA 91007  
ATTN: Mr. Steve Reiners

May 1, 2014

SUBJECT: Boeing SSFL GW 1<sup>st</sup> Qtr 2014, Data Validation

Dear Mr. Reiners,

Enclosed is the final validation report for the fractions listed below. This SDG was received on April 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project #31705:**

<b><u>SDG#</u></b>	<b><u>Fractions</u></b>
280-54107-2	Volatiles, Semivolatiles, Metals, Diesel Range Organics

The data validation was performed under EPA Level IV & V guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan, Santa Susana Field Laboratory RCRA Facility Investigation Surficial Media Operable Unit, March 2009, Rev. 4
- Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County CA, April 2010
- Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1, December 2009
- Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County CA, April 2010
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** April 10, 2014

**LDC Report Date:** April 30, 2014

**Matrix:** Water

**Parameters:** Volatiles

**Validation Level:** Level IV & V

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-54107-2

**Sample Identification**

RS-39\_041014\_01\*\*  
TB\_RS-39\_041014

\*\*Indicates sample underwent Level IV review

## Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Samples indicated by a double asterisk on the front cover underwent a Level IV review. A Level V review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level V criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

Instrument performance check data were not reviewed for Level V.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

Initial calibration data were not reviewed for Level V.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

Continuing calibration data were not reviewed for Level V.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were

found in the method blanks.

Sample TB\_RS-39\_041014 was identified as a trip blank. No volatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TB_RS-39_041014	4/10/14	Methylene chloride	0.44 ug/L	RS-39_041014_01**

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
RS-39_041014_01**	Methylene chloride	0.43 ug/L	5.0U ug/L

## VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits for samples on which a Level IV review was performed. Internal standards data were not evaluated for the samples reviewed by Level V criteria.

## **XI. Target Compound Identifications**

All target compound identifications were within validation criteria for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XII. Compound Quantitation**

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

<b>Sample</b>	<b>Finding</b>	<b>Flag</b>	<b>A or P</b>
All samples in SDG 280-54107-2	All compounds reported below the RL.	J (all detects)	A

Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XIII. Tentatively Identified Compounds (TICs)**

Tentatively identified compounds were not reported by the laboratory.

## **XIV. System Performance**

The system performance was acceptable for samples on which a Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level V criteria.

## **XV. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

## **XVI. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Data Qualification Summary - SDG 280-54107-2**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-54107-2	RS-39_041014_01** TB_RS-39_041014	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-54107-2**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Volatiles - Field Blank Data Qualification Summary - SDG 280-54107-2**

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
280-54107-2	RS-39_041014_01**	Methylene chloride	5.0U ug/L	A	T

LDC #: 31705A1a  
 SDG #: 280-54107-2  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level IV/V

Date: 4/24/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/10/14
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 30/15/70. Y <sup>2</sup>
IV.	Continuing calibration/ICV	A	10V/CCV ≤ 20/20
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	insufficient sample
VIII.	Laboratory control samples	A	ICS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	W	TB = 2

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

1	RS-39_041014_01**	W	11	MB 280-221345/5	21		31
2	TB_RS-39_041014	↓	12		22		32
3			13		23		33
4			14		24		34
5			15		25		35
6			16		26		36
7			17		27		37
8			18		28		38
9			19		29		39
10			20		30		40



## VALIDATION FINDINGS CHECKLIST

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria of $> 0.990$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $> 0.05$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Surrogate/spikes</b>				
Were all surrogate %R within QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within $\pm 20\%$ between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
XVII. Field blanks				
Field blanks were identified in this SDG.	/			
Target compounds were detected in the field blanks.	/			

## TARGET COMPOUND WORKSHEET

### METHOD: VOA

A. Chloromethane	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl chloride	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethane	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene	BB. 1,1,2,2-Tetrachloroethane	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane	CC. Toluene	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform	EE. Ethylbenzene	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN. Iodomethane
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.1,1-Difluoroethane
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

LDC #: 31705A1a

### VALIDATION FINDINGS WORKSHEET Field Blanks

Page: 1 of 1

Reviewer: 9

2nd Reviewer: \_\_\_\_\_

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

N N/A Were field blanks identified in this SDG?

N N/A Were target compounds detected in the field blanks?

Blank units: µg/L Associated sample units: µg/L

Sampling date: 4/10/14

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: 1 (EB) (T)

Compound	Blank ID	Sample Identification							
	<u>2</u>		<u>1</u>						
<u>E</u>	<u>0.44</u>		<u>0.43/5.04</u>						

Blank units: \_\_\_\_\_ Associated sample units: \_\_\_\_\_

Sampling date: \_\_\_\_\_

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other: \_\_\_\_\_

Associated Samples: \_\_\_\_\_

Compound	Blank ID	Sample Identification							

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

$\%RSD = 100 * (S/X)$

A<sub>x</sub> = Area of compound,

C<sub>x</sub> = Concentration of compound,

S = Standard deviation of the RRFs

X = Mean of the RRFs

A<sub>is</sub> = Area of associated internal standard

C<sub>is</sub> = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				RRF (10 std)	RRF (10 std)	Average RRF (initial)	Average RRF (initial)	%RSD	%RSD
1	10A2	4/3/10	QDD (1st internal standard)	0.4311	0.4311	0.4207	0.4207	2.7	2.7
			AA (2nd internal standard)	1.7159	1.7159	1.6248	1.6248	4.7	4.7
			(3rd internal standard)						
2			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						
3			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						
4			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

## VALIDATION FINDINGS WORKSHEET Continuing Calibration Results Verification

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 $A_x$  = Area of compound,                       $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,            $C_{is}$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	R3623	4/16/14	BBB (1st internal standard)	0.4207	0.4128	0.4128	1.9	1.9
			AA (2nd internal standard)	1.6248	1.436	1.436	11.6	11.6
			(3rd internal standard)					
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
5			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	9.63	9.81	102	102	0
1,2-Dichloroethane-d4	↓	10.6	110	110	↓
Toluene-d8	↓	9.03	94	94	↓
Bromofluorobenzene	↓	9.46	98	98	↓

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 31705A10

## VALIDATION FINDINGS WORKSHEET Laboratory Control Sample Results Verification

Page: 1 of 1  
Reviewer: 9  
2nd Reviewer: \_\_\_\_\_

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * SSC/SA$

Where: SSC = Spiked sample concentration  
SA = Spike added

RPD =  $|LCSC - LCSDC| * 2 / (LCSC + LCSDC)$

LCSC = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280-221345/4

Compound	Spike Added ( <u>142</u> )		Spiked Sample Concentration ( <u>142</u> )		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	<u>5.0</u>	<u>NA</u>	<u>4.56</u>	<u>NA</u>	<u>91</u>	<u>91</u>				
Trichloroethene	↓	↓	<u>4.78</u>	↓	<u>96</u>	<u>96</u>				
Benzene	↓	↓	<u>4.72</u>	↓	<u>94</u>	<u>94</u>				
Toluene	↓	↓	<u>4.86</u>	↓	<u>97</u>	<u>97</u>				
Chlorobenzene*										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** April 10, 2014

**LDC Report Date:** April 25, 2014

**Matrix:** Water

**Parameters:** Semivolatiles

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-54107-2

**Sample Identification**

RS-39\_041014\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C for Semivolatiles.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. GC/MS Instrument Performance Check**

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration**

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs).

Average relative response factors (RRF) for all compounds were within method and validation criteria.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for all compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

## **V. Blanks**

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **VI. Surrogate Spikes**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Regional Quality Assurance and Quality Control

Not applicable.

## X. Internal Standards

All internal standard areas and retention times were within QC limits.

## XI. Target Compound Identifications

All target compound identifications were within validation criteria.

## XII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-54107-2	All compounds reported below the RL.	J (all detects)	A

## XIII. System Performance

The system performance was acceptable.

## XIV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

## XV. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Data Qualification Summary - SDG 280-54107-2**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-54107-2	RS-39_041014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 280-54107-2**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Semivolatiles - Field Blank Data Qualification Summary - SDG 280-54107-2**

No Sample Data Qualified in this SDG

LDC #: 31705A2a  
 SDG #: 280-54107-2  
 Laboratory: Test America Inc.

## VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 4/10/14  
 Page: 6 of 7  
 Reviewer: [Signature]  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** GC/MS Semivolatiles (EPA SW846 Method 8270C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: <u>4/10/14</u>
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	<u>RSD ≤ 30/1570</u>
IV.	Continuing calibration/ICV	A	<u>1CV/CCV ≤ 20%</u>
V.	Blanks	A	
VI.	Surrogate spikes	<del>A</del> /W	
VII.	Matrix spike/Matrix spike duplicates	N	<u>insufficient sample</u>
VIII.	Laboratory control samples	A	<u>LCS/O</u>
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

1	RS-39_041014_01	<u>W</u>	11	<u>MB 280-22085/HA</u>	21		31
2			12		22		32
3			13		23		33
4			14		24		34
5			15		25		35
6			16		26		36
7			17		27		37
8			18		28		38
9			19		29		39
10			20		30		40

Method: Semivolatiles (EPA SW 846 Method 8270)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	/			
Cooler temperature criteria was met.	/			
<b>II. GC/MS instrument performance check</b>				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>III. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation?		/		
Did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?			/	
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $> 0.05$ ?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?	/			
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	/			
Was a method blank analyzed for each matrix and concentration?	/			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	<del>/</del>	/		
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			/	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			/	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		/		
Was a MS/MSD analyzed every 20 samples of each matrix?			/	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			/	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			



Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds from the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within $\pm 20\%$ between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		/		
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
XVII. Field blanks				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	

## VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.



## VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF =  $(A_x)(C_{is}) / (A_{is})(C_x)$   
 average RRF = sum of the RRFs/number of standards  
 %RSD =  $100 * (S/X)$

$A_x$  = Area of compound,  $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,  $C_{is}$  = Concentration of internal standard  
 S = Standard deviation of the RRFs, X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				RRF ( <u>SD</u> std)	RRF ( <u>SD</u> std)	Average RRF (initial)	Average RRF (initial)	%RSD	%RSD
1	1CAZ	3/5/14	Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard) CC	1.1542	1.1542	1.1219	1.1219	5.8	5.8
			Pentachlorophenol (4th internal standard) XX	1.0932	1.0932	1.0500	1.0500	5.1	5.1
			Bis(2-ethylhexyl)phthalate (5th internal standard)	0.6313	0.6313	0.6135	0.6135	3.4	3.4
			Benzo(a)pyrene (6th internal standard) FFF						
2			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
3			Phenol (1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Pentachlorophenol (4th internal standard)						
			Bis(2-ethylhexyl)phthalate (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

## VALIDATION FINDINGS WORKSHEET

### Continuing Calibration Results Verification

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$$

Where: ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 $A_x$  = Area of compound,  $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,  $C_{is}$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported	Recalculated	Reported	Recalculated
					RRF (CC)	RRF (CC)	%D	%D
1	K6551	4/15/14	Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard) CC	1.1219	0.996	0.996	11.2	11.2
			Pentachlorophenol (4th internal standard) XX	1.0500	0.9152	0.9152	12.8	12.8
			Bis(2-ethylhexyl)phthalate (5th internal standard)	0.6135	0.5469	0.5469	10.9	10.9
			Benzo(a)pyrene (6th internal standard)					
2			Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
3			Phenol (1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Pentachlorophenol (4th internal standard)					
			Bis(2-ethylhexyl)phthalate (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC/MS Semivolatiles (EPA SW 846 Method 8270)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	100	81.9	82	82	0
2-Fluorobiphenyl	↓	<del>77</del> 81.8	82	82	↓
Terphenyl-d14	↓	36.5	36	36	↓
Phenol-d5		76.5			
2-Fluorophenol		77.1			
2,4,6-Tribromophenol		<del>84.5</del>			
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

## VALIDATION FINDINGS WORKSHEET

### Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SC/SA)

Where: SSC = Spike concentration  
 SA = Spike added

RPD = | LCSC - LCSDC | \* 2 / (LCSC + LCSDC)

LCSC = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: LCS/0 880-22080/2 A

Compound	Spike Added ( <u>µg/L</u> )		Spike Concentration ( <u>µg/L</u> )		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
<u>2,2,2</u>	<u>80.0</u>	<u>80.0</u>	<u>68.4</u>	<u>69.4</u>	<u>86</u>	<u>86</u>	<u>87</u>	<u>87</u>	<u>1</u>	<u>1</u>

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014

**Collection Date:** April 10, 2014

**LDC Report Date:** April 28, 2014

**Matrix:** Water

**Parameters:** Metals

**Validation Level:** Level IV

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 280-54107-2

**Sample Identification**

RS-39\_041014\_01  
RS-39\_041014\_01F  
RS-39\_041014\_01MS  
RS-39\_041014\_01MSD  
RS-39\_041014\_01FMS  
RS-39\_041014\_01FMDS

Samples appended with "F" were analyzed as dissolved metals

## Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B, 6020, and 7470A for Metals. The metals analyzed were Antimony, Arsenic, Cadmium, Chromium, Copper, Mercury, Selenium, Silver, Sodium, Titanium, and Zinc.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

## III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

## IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.124 mg/L	RS-39_041014_01
ICB/CCB	Sodium	397 ug/L	RS-39_041014_01
PB (prep blank)	Sodium	0.112 mg/L	RS-39_041014_01F
ICB/CCB	Sodium	9470 ug/L	RS-39_041014_01F

Data qualification by the preparation blanks (PBs) was based on the maximum contaminant concentration in the PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

No field blanks were identified in this SDG.

## V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

## VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## VII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## IX. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

## X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

## XI. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG 280-54107-2	All analytes reported below the RL and above the MDL.	J (all detects)	A

## XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

## XIII. Field Duplicates

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
Metals - Data Qualification Summary - SDG 280-54107-2**

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
280-54107-2	RS-39_041014_01 RS-39_041014_01F	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (TR)

**Boeing SSFL GW 1st Qtr 2014  
Metals - Laboratory Blank Data Qualification Summary - SDG 280-54107-2**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
Metals - Field Blank Data Qualification Summary - SDG 280-54107-2**

No Sample Data Qualified in this SDG

LDC #: 31705A4  
 SDG #: 280-54107-2  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level IV

gmH

Date: 4-25-14  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: CF

**METHOD:** Metals (EPA SW 846 Method 6020~~W7000~~)/6010B/7470A

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4-10-14
II.	ICP/MS Tune	A	
III.	Calibration	gmH ASW	(high Na stds in limits)
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A ✓	
VI.	Matrix Spike Analysis	A	MS/MSD
VII.	Duplicate Sample Analysis	N	
VIII.	Laboratory Control Samples (LCS)	A	LCS/LCSD
IX.	Internal Standard (ICP-MS)	A	
X.	Furnace Atomic Absorption QC		
XI.	ICP Serial Dilution	A	
XII.	Sample Result Verification	A	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV.	Field Blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:  
water

1	RS-39_041014_01	11		21		31
2	RS-39_041014_01F	12		22		32
3	RS-39_041014_01MS	13		23		33
4	RS-39_041014_01MSD	14		24		34
5	RS-39_041014_01FMS	15		25		35
6	RS-39_041014_01FMSD	16		26		36
7		17		27		37
8		18		28		38
9		19		29	PBW1	39
10		20		30	PBW2	40

Notes: Samples appended with "F" were analyzed as dissolved

**Method:Metals (EPA SW 846 Method 6010/7000/6020)**

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?	✓			
<b>III. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients $> 0.995$ ?	✓			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) $< 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	✓			
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
<b>IX. ICP Serial Dilution</b>				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	





LDC #: 31705A4

SDG #: See Cover

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000)

Sample Concentration units, unless otherwise noted: mg/L

VALIDATION FINDINGS WORKSHEET

PB/ICB/CCB QUALIFIED SAMPLES

Soil preparation factor applied: NA

Associated Samples: 1 (>5x)

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Na		0.124	397	1.985										

Sample Concentration units, unless otherwise noted: mg/L

Associated Samples: 2 (>5x)

Analyte	Maximum PB <sup>a</sup> (mg/Kg)	Maximum PB <sup>a</sup> (mg/L)	Maximum ICB/CCB <sup>a</sup> (ug/L)	Action Limit	No Qual's.									
Na		0.112	9470	47.35										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 31705A4

**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated	Reported	Acceptable (Y/N)
					%R	%R	
1520 ICV	ICP (Initial calibration)	Ti	243.93	250	98	98	Y
1928 ICV	ICP/MS (Initial calibration)	Cu	40.46	40.0	101	101	 ↓
1404 ICV	CVAA (Initial calibration)	Hg	3.924	4.00	98	98	
2027 CCV	ICP (Continuing calibration)	Na	5386.4	5000	108	108	
2129 CCV	ICP/MS (Continuing calibration)	Se	52.59	50.0	105	105	
1720 CCV	CVAA (Continuing calibration)	Hg	5.391	5.00	108	108	
	GFAA (Initial calibration)						
	GFAA (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31705A4

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$
 Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
 True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$
 Where, S = Original sample concentration  
 D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$
 Where, I = Initial Sample Result (mg/L)  
 SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
<u>1947</u> ICSAB	ICP interference check	<u>Cv</u>	<u>99.49 (mg/L)</u>	<u>100 (mg/L)</u>	<u>99</u>	<u>99</u>	<u>Y</u>
<u>2138</u> LCS	Laboratory control sample	<u>Ag</u>	<u>0.0403 (mg/L)</u>	<u>0.0400 (mg/L)</u>	<u>101</u>	<u>101</u>	↓
<u>2151</u> 3	Matrix spike	<u>Zn</u>	<u>(SSR-SR)</u> <u>0.0370 (mg/L)</u>	<u>0.0400 (mg/L)</u>	<u>92</u>	<u>93</u>	
<u>2151 / 2154</u> 3/4	Duplicate	<u>Cd</u>	<u>0.0385 (mg/L)</u>	<u>0.0402 (mg/L)</u>	<u>4</u>	<u>4</u>	
<u>2039 / 2042</u> 1	ICP serial dilution	<u>Na</u>	<u>132.71 (mg/L)</u>	<u>134.58 (mg/L)</u>	<u>1.4</u>	<u>1.4</u>	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**Laboratory Data Consultants, Inc.  
Data Validation Report**

**Project/Site Name:** Boeing SSFL GW 1st Qtr 2014  
**Collection Date:** April 10, 2014  
**LDC Report Date:** April 25, 2014  
**Matrix:** Water  
**Parameters:** Total Petroleum Hydrocarbons as Extractables  
**Validation Level:** Level IV  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-54107-2

**Sample Identification**

RS-39\_041014\_01

## Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons as Extractables.

This review follows the Quality Assurance Project Plan, Santa Susana Field Laboratory (SSFL) RCRA Facility Investigation Surficial Media Operable Unit (March 2009, Revision 4), the Regulated Unit Water Quality Sampling and Analysis Plan, Areas I and III, Post-Closure Permit PC-94/95-03-02, Santa Susana Field Laboratory, Ventura County, CA (April 2010), the Site-Wide Water Quality Sampling and Analysis Plan, Santa Susana Field Laboratory, Ventura County, CA, Revision 1 (December 2009), the Regulated Unit Water Quality Sampling and Analysis Plan, Area II, Post-Closure Permit PC-94/95-3-03, Santa Susana Field Laboratory, Ventura County, CA (April 2010), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- NJ Presumptive evidence of presence of the compound at an estimated quantity.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

## **I. Technical Holding Times**

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

## **II. Initial Calibration**

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than 20.0%.

## **III. Continuing Calibration**

Continuing calibration was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

## **IV. Blanks**

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractable contaminants were found in the method blanks.

No field blanks were identified in this SDG.

## **V. Surrogate Recovery**

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

## **VI. Matrix Spike/Matrix Spike Duplicates**

The laboratory has indicated that there was insufficient sample volume for analysis of the matrix spike and matrix spike duplicate.

## **VII. Laboratory Control Samples (LCS)**

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

## **VIII. Target Compound Identification**

All target compound identifications were within validation criteria.



**IX. Compound Quantitation**

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG 280-54107-2	All compounds reported below the RL.	J (all detects)	A

**X. System Performance**

The system performance was acceptable.

**XI. Overall Assessment of Data**

Data flags are summarized at the end of this report if data has been qualified.

**XII. Field Duplicates**

No field duplicates were identified in this SDG.

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary -  
 SDG 280-54107-2**

SDG	Sample	Compound	Flag	A or P	Reason (Code)
280-54107-2	RS-39_041014_01	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (TR)

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data  
 Qualification Summary - SDG 280-54107-2**

No Sample Data Qualified in this SDG

**Boeing SSFL GW 1st Qtr 2014  
 Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification  
 Summary - SDG 280-54107-2**

No Sample Data Qualified in this SDG

LDC #: 31705A8  
 SDG #: 280-54107-2  
 Laboratory: Test America Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 4/10/14  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer:

**METHOD:** TPH as Extractables (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/10/14
II.	Initial calibration	A	RSD ≤ 20%
III.	Calibration verification/ICV	A	ICV/CCV ≤ 20%
IV.	Blanks	A	
V.	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	insufficient sample
VII.	Laboratory control samples	A	100%
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

Validated Samples:

1	RS-39_041014_01	W	11	MB 280-220854-1-A1	21	31
2			12		22	32
3			13		23	33
4			14		24	34
5			15		25	35
6			16		26	36
7			17		27	37
8			18		28	38
9			19		29	39
10			20		30	40

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method:  GC  HPLC

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq 20\%$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria of $> 0.990$ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 15.0\%$ or $\leq 20.0\%$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IX. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the performance evaluation (PE) samples within the acceptance limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Validation Area	Yes	No	NA	Findings/Comments
<b>X. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	/			
<b>XI. Compound quantitation/CRQLs</b>				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XII. System performance</b>				
System performance was found to be acceptable.	/			
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			
<b>XIV. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	
<b>XV. Field blanks</b>				
Field blanks were identified in this SDG.		/		
Target compounds were detected in the field blanks.			/	

LDC #: 31705A8

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: 9  
 2nd Reviewer: \_\_\_\_\_

METHOD: GC   /   HPLC \_\_\_\_\_

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C  
 average CF = sum of the CF/number of standards  
 %RSD = 100 \* (S/X)

A = Area of compound,  
 C = Concentration of compound,  
 S = Standard deviation of the CF  
 X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				CF (300std)	CF (700std)	Average CF (initial)	Average CF (initial)	%RSD	%RSD
1	1CAZ	7/16/13	C8-C30	168457	168457	172491.111	172490.88	3.6	3.6
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



LDC #: 31705A8

# VALIDATION FINDINGS WORKSHEET

## Surrogate Results Verification

Page: 1 of 1

Reviewer: 9

2nd reviewer: \_\_\_\_\_

METHOD:  GC  HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery		Percent Difference
				Reported	Recalculated	
<u>TPH</u>	<u>RTX-1</u>	<u>50.0</u>	<u>49.0</u>	<u>98</u>	<u>98</u>	<u>0</u>

Sample ID: \_\_\_\_\_

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery		Percent Difference
				Reported	Recalculated	

Sample ID: \_\_\_\_\_

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery		Percent Difference
				Reported	Recalculated	



**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification**

METHOD: GC  HPLC

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 \* (SSC-SC)/SA

Where: SSC = Spiked sample concentration  
 SA = Spike added

SC = Concentration

RPD = |SSCLCS - SSCLCSD| \* 2 / (SSCLCS + SSCLCSD)

LCS = Laboratory control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS 280-220856/2A

Compound	Spike Added (mg/L)		Spiked Sample Concentration (mg/L)		LCS		LCSD		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Percent Recovery		Percent Recovery		RPD	
					Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel (8015) <u>CB-30</u>	<u>3.75</u>	<u>3.75</u>	<u>3.89</u>	<u>4.00</u>	<u>104</u>	<u>104</u>	<u>107</u>	<u>107</u>	<u>3</u>	<u>3</u>
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

## VALIDATION FINDINGS WORKSHEET

### Sample Calculation Verification

METHOD:  GC  HPLC

Y N N/A  
Y N N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10% of the reported results?

Concentration =  $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

Example:

Sample ID: ND Compound Name LCS: C8-C30

- A= Area or height of the compound to be measured
- Fv= Final Volume of extract
- Df= Dilution Factor
- RF= Average response factor of the compound  
In the initial calibration
- Vs= Initial volume of the sample
- Ws= Initial weight of the sample
- %S= Percent Solid

Concentration =  $\frac{(670195676)(1)(1)}{(172491.111)(1000)}$   
 $= 3.885 \text{ mg/L}$

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: \_\_\_\_\_