

State Water Resources Control Board

UST CASE CLOSURE REVIEW SUMMARY REPORT

Agency Information

Agency Name: Central Valley Regional Water Quality Control Board (Regional Water Board)	Address: 11020 Sun Center Drive #200 Rancho Cordova, CA 95670
Agency Caseworker: Glenn Meeks	Case No.: 050011

Case Information

USTCF Claim No.: 12013	GeoTracker Global ID: T0600900009
Site Name: Busi Chevron	Site Address: 8 East California Street, Valley Springs, CA 95252
Responsible Party: John Fischer	Address: 8 California Street Valley Springs, CA 95252
USTCF Expenditures to Date: \$ 438,165	Number of Years Case Open: 23

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600900009

Summary

The Low-Threat Underground Storage Tank (UST) Case Closure Policy (Policy) contains general and media-specific criteria, and cases that meet those criteria are appropriate for closure pursuant to the Policy. This case meets all of the required criteria of the Policy. A summary evaluation of compliance with the Policy is shown in **Attachment 1: Compliance with State Water Board Policies and State Law**. The Conceptual Site Model upon which the evaluation of the case has been made is described in **Attachment 2: Summary of Basic Case Information (Conceptual Site Model)**. Highlights of the case follow:

This case is a former commercial fueling station, with the current use being a real estate office. An unauthorized leak was reported in February 1990. Three 3,000 gallon UST's were removed in December 1989 and a 300 gallon tank was closed in place. Since 1990, eight monitoring wells have been installed and approximately 20 cubic yards of contaminated soil excavated and disposed of offsite. Site remediation has consisted of forms of oxygen release compounds (ORC) injection that occurred in February 2005, October and November 2008. Also a mobile dual phase pilot test occurred in July 2010, removing 42 gallons of water. Only one monitoring well (MW-4S) is still being monitored. According to available groundwater data, water quality objectives have been achieved or nearly achieved for all constituents.

The petroleum release is limited to the soil and shallow groundwater. According to data available in GeoTracker, there are no supply wells regulated by the California Department of Public Health or surface water bodies within 250 feet of the defined plume boundary. No other water supply wells have been identified within 250 feet of the defined plume boundary in files reviewed. Water is provided to water users near the Site by the Valley Springs Public Utility District. The affected groundwater is not currently being used as a source of drinking water, and it is highly unlikely that the affected groundwater will be used as a source of drinking water in the foreseeable future. Other designated beneficial uses of impacted groundwater are not threatened, and it is highly

unlikely that they will be, considering these factors in the context of the site setting. Remaining petroleum hydrocarbon constituents are limited, stable and concentrations declining. Corrective actions have been implemented and additional corrective actions are not necessary. Any remaining petroleum hydrocarbon constituents do not pose a significant risk to human health, safety or the environment.

Rationale for Closure under the Policy

- General Criteria: The case meets all eight Policy general criteria.
- Groundwater Specific Criteria: The case meets Policy Criterion 1 by Class 1. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
Vapor Intrusion to Indoor Air: The case meets Policy Criterion 2c. As a result of controlling exposures through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that petroleum vapor migrating from soil or groundwater will have no significant risk of adversely affecting human health risk.
- Direct Contact and Outdoor Air Exposure: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use, and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

Objections to Closure and Responses

In their October 2011 letter, the Regional Water Board objects to UST case closure because:

- The Regional Water Board states the site does not meet the required 5ft. of clean soil present at the surface in order to eliminate the need for soil vapor assessment work.
RESPONSE: The heating and air conditioning system (HVAC) has been changed to produce a positive pressure environment which meets the soil vapor intrusion criteria as engineered controls. This case meets Policy criteria 2c.
- The existing real estate office has a high risk of soil vapor intrusion into indoor air contamination for TPHg ($6 \times 10^6 \mu\text{g}/\text{m}^3$), benzene ($<160 \mu\text{g}/\text{m}^3$) and ethyl benzene ($1.1 \times 10^5 \mu\text{g}/\text{m}^3$).
RESPONSE: These calculations were completed prior to the HVAC being modified.

- The existing HVAC system put into place to alleviate potential indoor air contamination is only a temporary solution, and there is no long term requirement in place to ensure continuous use of the system.

RESPONSE: The only effective technology to protect this commercial building has been provided (the HVAC). Keeping this case open will not ensure constant operation of the HVAC system. Engineering control is the only feasible remedial option because all other remedial options are not feasible:

1. The site is underlain by the lone Clay (a very tight clay);
2. Soil vapor and/or groundwater extraction is not feasible;
3. Air sparging is not feasible;
4. Excavation is not feasible due to the proximity to building foundation.

As part of the notification requirements in the Policy the local Building Department will be notified. If future redevelopment occurs, the petroleum hydrocarbon impacted soil can be removed at that time. Further soil vapor monitoring does not provide any safety measures.

- The Regional Water Board also disagreed with the consultants' opinion, that the site exhibits a low risk impact to public health. The Regional Water Board responded to the consultant, stating that the submitted summary is incorrect, due to the inappropriately modified soil vapor concentration input data.

RESPONSE: As stated above the only feasible mitigation measure has been installed.

Determination

Based on the review performed in accordance with Health & Safety Code Section 25299.39.2 subdivision (a), the Fund Manager has determined that closure of the case is appropriate.

Recommendation for Closure

Based on available information, residual petroleum hydrocarbons at the Site do not pose a significant risk to human health, safety, or the environment, and the case meets the requirements of the Policy. Accordingly, the Fund Manager recommends that the case be closed. The State Water Board is conducting public notification as required by the Policy. Calaveras County has the regulatory responsibility to supervise the abandonment of monitoring wells.



Lisa Babcock, P.G. 3939, C.E.G. 1235



Date

Prepared by: Kenyatta Dumisani

ATTACHMENT 1: COMPLIANCE WITH STATE WATER BOARD POLICIES AND STATE LAW

The case complies with the State Water Resources Control Board policies and state law. Section 25296.10 of the Health and Safety Code requires that sites be cleaned up to protect human health, safety, and the environment. Based on available information, any residual petroleum constituents at the Site do not pose significant risk to human health, safety, or the environment.

The case complies with the requirements of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.¹

<p>Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations? The corrective action provisions contained in Chapter 6.7 of the Health and Safety Code and the implementing regulations govern the entire corrective action process at leaking UST sites. If it is determined, at any stage in the corrective action process, that UST site closure is appropriate, further compliance with corrective action requirements is not necessary. Corrective action at this site has been consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations and, since this case meets applicable case-closure requirements, further corrective action is not necessary, unless the activity is necessary for case closure.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this case?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>If so, was the corrective action performed consistent with any order?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p><u>General Criteria</u> General criteria that must be satisfied by all candidate sites:</p> <p>Is the unauthorized release located within the service area of a public water system?</p> <p>Does the unauthorized release consist only of petroleum?</p> <p>Has the unauthorized (“primary”) release from the UST system been stopped?</p> <p>Has free product been removed to the maximum extent practicable?</p> <p>Has a conceptual site model that assesses the nature, extent, and mobility</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

¹ Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

<p>of the release been developed?</p> <p>Has secondary source been removed to the extent practicable?</p> <p>Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?</p> <p>Nuisance as defined by Water Code section 13050 does not exist at the Site?</p> <p>Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p><u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria:</p> <p>1. Groundwater: To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:</p> <p>Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?</p> <p>Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?</p> <p>If YES, check applicable class: <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5</p> <p>For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>
<p>2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies.</p> <p>Is the Site an active commercial petroleum fueling facility? Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.</p> <p>a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

<p>of the applicable characteristics and criteria of scenario 4? If YES, check applicable scenarios: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4</p> <p>b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>3. Direct Contact and Outdoor Air Exposure: The Site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).</p> <p>a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?</p> <p>b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?</p> <p>c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</p>

ATTACHMENT 2: SUMMARY OF BASIC CASE INFORMATION (Conceptual Site Model)

Site Location/History

- This case is located on the intersection of Laurel Street, and Highway 12 in Valley Springs, CA and currently is a real estate office.
- The Site is bounded by a salon to the south, a spa to the west, a restaurant across Laurel Street to the north, and a utility store east across Highway 12.
- Site maps showing the location of the former USTs, monitoring wells, groundwater level contours, and benzene concentrations are provided at the end of this closure review summary (Versar, 2013).
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Source: UST system.
- Date reported: February 1990.
- Status of Release: Three USTs removed and one closed in place.

Tank Information

Tank No.	Size in Gallons	Contents	Closed in Place/Removed/Active	Date
1	2,000	Gasoline	Removed	December 1998
2	2,000	Gasoline	Removed	December 1998
3	2,000	Gasoline	Removed	December 1998
4	300	Gasoline	Closed in Place	December 1997

Receptors

- GW Basin: San Joaquin Valley-Eastern San Joaquin.
- Beneficial Uses According to Regional Water Board Basin Plan: Agricultural Supply, Industrial Process and Service Water Supply, Municipal and Domestic Supply.
- Land Use Designation: Aerial photograph available on GeoTracker indicates mixed residential and commercial land use in the vicinity of the Site.
- Public Water System: Valley Springs Public Utility District.
- Distance to Nearest Supply Well: According to data available in GeoTracker, there are no public supply wells regulated by the California Department of Public Health within 250 feet of the defined plume boundary. No other water supply wells were identified within 250 feet of the defined plume boundary in the files reviewed.
- Distance to Nearest Surface Water: There is no identified surface water within 250 feet of the defined plume boundary.

Geology/Hydrogeology

- Stratigraphy: The Site is underlain by sand, silt, clay and gravel underlain by non-marine clay.
- Maximum Sample Depth: 5.1 feet below ground surface (bgs).
- Minimum Groundwater Depth: 0.61 feet bgs at monitoring well MW-1.
- Maximum Groundwater Depth: 5.96 feet bgs at monitoring well MW-5.
- Current Average Depth to Groundwater: Approximately 3 feet bgs.
- Saturated Zones(s) Studied: Approximately 0 - 36 feet bgs.
- Appropriate Screen Interval: Yes.

- Groundwater Flow Direction: Northwest with an average gradient of 0.06 feet/foot (January 2013).

Monitoring Well Information

Well Designation	Date Installed	Screen Interval (feet bgs)	Depth to Water (feet bgs) (01/02/2013)
MW-1*	October 2000	unknown	NM
MW-2*	October 2000	unknown - 7	NM
MW-3*	October 2000	unknown - 8	NM
MW-4s	October 2000	unknown - 10	2.92
MW-4d	October 2000	unknown - 36	3.70
MW-5*	October 2000	unknown - 10	NM
MW-6	October 2000	unknown - 10	5.10
MW-7	October 2000	unknown - 10	1.10

*: Not measured; (NM), Wells destroyed 1/2/2013)

Remediation Summary

- Free Product: None reported in GeoTracker.
- Soil Excavation: Approximately 20 cubic yards was excavated on December 29, 1989
- In-Situ Soil Remediation/Groundwater Remediation:
 - ORC Injection (magnesium hydroxide) over 6 locations - February 2005
 - RegenOx – October 2008 (600 pounds over 52 different locations)
 - RegenOx – November 2008 (998 pounds over 33 different locations)
 - Mobile Dual Phase Extraction Pilot Test - July 2010 (42 gallons of groundwater removed)

Most Recent Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs [mg/kg and (date)]	Maximum 5-10 feet bgs [mg/kg and (date)]
Benzene	3.3 (2/2000)	1.9 (10/2000)
Ethylbenzene	8.9 (2/2000)	4.7 (10/2000)
Naphthalene	NA	NA
PAHs	NA	NA

NA: Not Analyzed, Not Applicable or Data Not Available
 mg/kg: Milligrams per kilogram, parts per million
 <: Not detected at or above stated reporting limit
 PAHs: Polycyclic aromatic hydrocarbons

Most Recent Concentrations of Petroleum Constituents in Groundwater

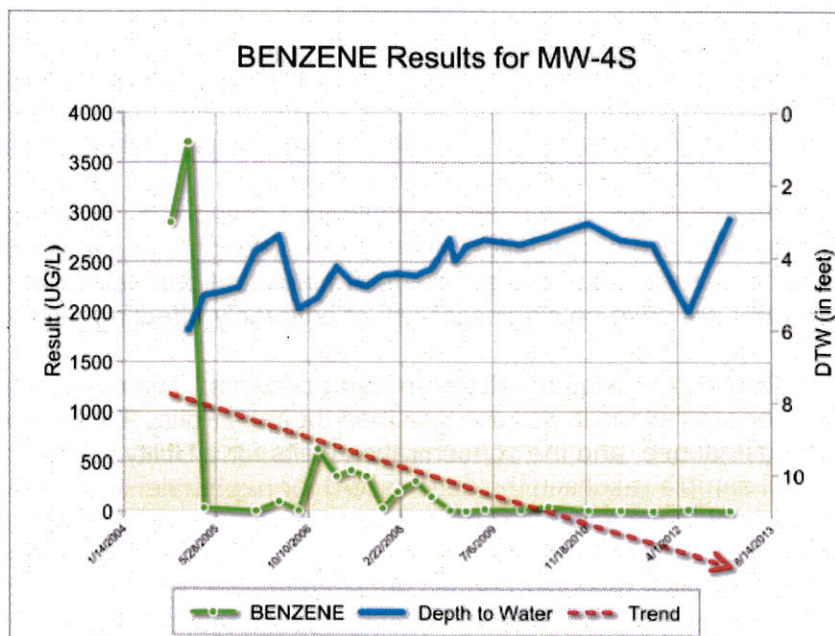
Sample	Sample Date	TPHg (µg/L)	TPHd (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Xylenes (µg/L)
MW-1	11/16/2011	<50	<50	<1.0	<1.0	<1.0	<2.0
MW-2	11/16/2011	<50	<50	<1.0	<1.0	<1.0	<2.0
MW-3	11/16/2011	<50	<50	<1.0	<1.0	<1.0	<2.0
MW-4s	01/02/2013	200	<50	5.5	4.1	2.0	<2.0
MW-4d	11/16/2011	<50	<50	<1.0	<1.0	<1.0	<2.0
MW-5	11/16/2011	<50	<50	<1.0	<1.0	<1.0	<2.0
MW-6	11/16/2011	60	<50	<1.0	<1.0	<1.0	<2.0
MW-7	11/16/2011	<50	<50	<1.0	<1.0	<1.0	<2.0
WQOs		5	56	0.15	42	29	17

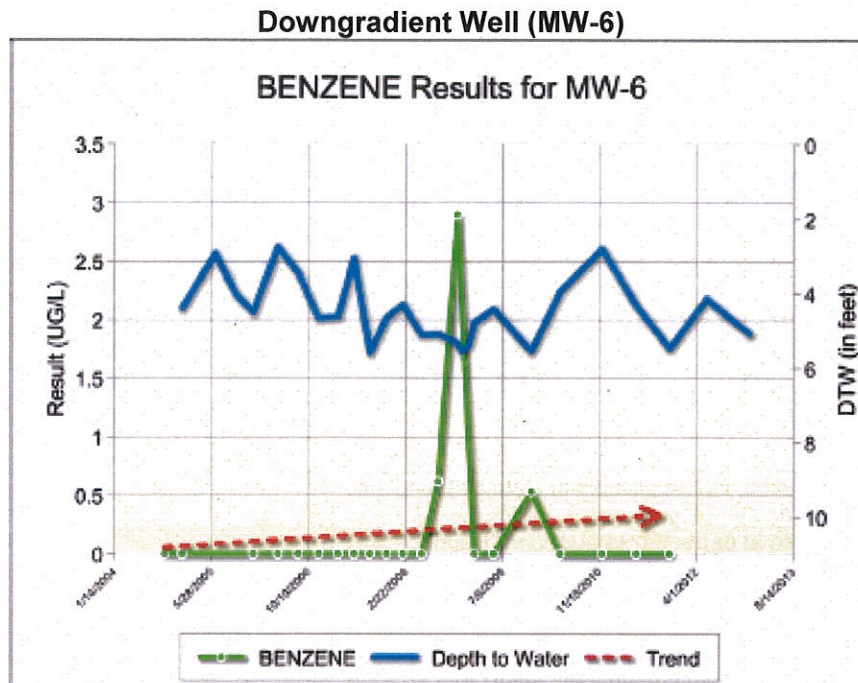
NA: Not Analyzed, Not Applicable or Data Not Available
 µg/L: Micrograms per liter, parts per billion
 <: Not detected at or above stated reporting limit
 TPHg: Total petroleum hydrocarbons as gasoline
 TPHd: Total petroleum hydrocarbons as diesel
 TBA: Tert-butyl alcohol
 WQOs: Water Quality Objectives, Regional Water Board Basin Plan
 a: Secondary maximum contaminant level (MCL)
 b: California Department of Public Health, Response Level

Groundwater Trends

- There are 12 years of regular groundwater monitoring data for this case. Benzene trends are shown below for monitoring well MW-4S:

Source Area Well (MW-4S)





Evaluation of Current Risk

- Estimate of Hydrocarbon Mass in Soil: None reported.
- Soil/Groundwater tested for methyl tert-butyl ether (MTBE): Yes.
- Oxygen Concentrations in Soil Vapor: None reported.
- Plume Length: <100 feet long.
- Plume Stable or Decreasing: Yes.
- Contaminated Zone(s) Used for Drinking Water: No.
- Groundwater Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 1 by Class 1. The contaminant plume that exceeds water quality objectives is less than 100 feet in length. There is no free product. The nearest water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- Vapor Intrusion to Indoor Air: The case meets Policy Criterion 2c. As a result of controlling exposures through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that petroleum vapor migrating from soil or groundwater will have no significant risk of adversely affecting human health risk.
- Direct Contact Risk from Residual Petroleum Hydrocarbons: The case meets Policy Criterion 3a. Maximum concentrations in soil are less than those in Policy Table 1 for Commercial/Industrial use, and the concentration limits for a Utility Worker are not exceeded. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Policy Table 1. Therefore, the estimated naphthalene concentrations meet the

thresholds in Table 1 and the Policy criteria for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

