
Elba Liquefaction Project

Initial Draft Resource Report 1

General Project Description

Docket No. PF13-3-000

Public

Elba Liquefaction Company, L.L.C.



Southern LNG
Company, L.L.C.
a Kinder Morgan company

Elba Liquefaction Company, L.L.C. and
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April 2013

ELBA LIQUEFACTION PROJECT

DRAFT RESOURCE REPORT 1 – PROJECT DESCRIPTION

Summary of Filing Information

Minimum Requirements	Found in Section
1. Provide a detailed description and location map of the Project facilities. (§380.12(c)(1))	Sections 1.1, 1.2.1; Figures 1-1, 1.2-1
2. Describe any non-jurisdictional facilities that would be built in association with the Project. (§380.12(c)(2))	Section 1.9
3. Provide current original U.S. Geological Survey (USGS) 7.5-minute series topographic maps with mileposts showing the Project facilities. (§380.12(c)(3)).	Appendix 1.B
4. Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the Project facilities. (§380.12(c)(3)).	Appendix 1.B
5. Provide plot/site plans of compressor stations showing the location of the nearest noise-sensitive areas (NSA) within 1 mile. (§380.12(c)(3,4)).	Resource Report 9
6. Describe construction and restoration methods. (§380.12(c)(6)).	Section 1.4
7. Identify the permits required for construction across surface waters. (§380.12(c)(9)).	Section 1.7, Table 1.7-1
8. Provide the names and addresses of all affected landowners and certify that all affected landowners will be notified as required in §157.6(d). (§§380.12(a)(4) and (c)(10)).	Section 1.8, Appendix 1.C
Additional Information	
<ul style="list-style-type: none"> • Describe all authorizations required to complete the proposed action and the status of applications for such authorizations. 	Section 1.7, Table 1.7-1
<ul style="list-style-type: none"> • Provide plot/site plans of all other aboveground facilities that are not completely within the right-of-way. 	Appendix 1.B
<ul style="list-style-type: none"> • Provide detailed typical construction right-of-way cross-section diagrams showing information such as widths and relative locations of existing rights-of-way, new permanent right-of-way, and temporary construction right-of-way. See Resource Report 8. 	Not Applicable
<ul style="list-style-type: none"> • Summarize the total acreage of land affected by construction and operation of the Project. 	Section 1.3
<ul style="list-style-type: none"> • If Resource Report 5, Socioeconomics is not provided, provide the start and end dates of construction, the number of pipeline spreads that would be used, and the workforce per spread. 	Not Applicable
<ul style="list-style-type: none"> • Send two (2) additional copies of topographic maps and aerial images/photographs directly to the environmental staff of the Office of Energy Projects (“OEP”). 	Included with filing

ELBA LIQUEFACTION PROJECT
Elba Liquefaction Company, L.L.C.
Southern LNG Company, L.L.C.

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Public, Volume I
1.C STAKEHOLDER INFORMATION *Privileged, Volume II*

ACRONYMS AND ABBREVIATIONS

ASME	American Society of Mechanical Engineers
Bcf	billion cubic feet
BOG	boil-off gas
CBR	California Bearing Ratio
CFR	Code of Federal Regulations
Companies	Elba Liquefaction Company,L.L.C. and Southern LNG Company, L.L.C.
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EI	Environmental Inspector
ELC	Elba Liquefaction Company, L.L.C.
EPB	El Paso Pipeline Partners, L.P.
ER	Environmental Report
ESA	Endangered Species Act
ESD	emergency shutdown
F	Fahrenheit
FEMA	Federal Emergency Management Administration
FERC or Commission	Federal Energy Regulatory Commission
ft	feet
GDNR	Georgia Department of Natural Resources
GEPD	Georgia Environmental Protection Division
Hz	Hertz (cycles per second)
IBC	International Building Code
kV	kilovolt
LNG	liquefied natural gas
LNGC	LNG carrier
m ³	cubic meter
m ³ /hr	cubic meters per hour
MLW	mean low water
MMcf/d	million cubic feet per day
MMLS	Moveable Modular Liquefaction System
mph	miles per hour
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MTPA	million tonnes per annum
MVA	megavolt ampere
MVAR	megavolt ampere reactive
NEPA	National Environmental Policy Act
NERA	NERA Economic Consulting
NFPA	National Fire Protection Association
NGA	Natural Gas Act

NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NSA	noise sensitive area
OMAR	Operation Mode Assurance Review
OPS	Office of Pipeline Safety
PCB	polychlorinated biphenyl
PEFS	Process Engineering Flow Scheme
PHMSA	Pipeline and Hazardous Materials Safety Administration
Plan	FERC’s Upland Erosion Control, Revegetation, and Maintenance Plan
Procedures	FERC’s Wetland and Waterbody Construction and Mitigation Procedures
Project	Elba Liquefaction Project
PSD	Prevention of Significant Deterioration
SCDHEC	South Carolina Department of Health and Environmental Conservation
SHPO	State Historic Preservation Office
SLNG	Southern LNG Company, L.L.C.
SPMT	self-propelled module transporter
SMR	Single Mixed Refrigerant
Terminal	Elba LNG Terminal
Twin 30s Pipeline	Two 13.25-mile-long, 30-inch-diameter pipelines that extend from the Terminal to an interconnection with the rest of Southern Natural Gas Company, L.L.C.’s pipeline system near Port Wentworth, Georgia. Southern Natural Gas Company, L.L.C., a Delaware limited liability company, Elba Express Company L.L.C., a Delaware limited liability company, and Carolina Gas Transmission Corporation collectively own an undivided interest in the Twin 30s Pipeline.
U.S.	United States
USFWS	U.S. Fish and Wildlife Service
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey
WRD	GDNR Wildlife Resources Division
WSA	Waterway Suitability Assessment

1 GENERAL PROJECT DESCRIPTION

Elba Liquefaction Company, L.L.C.¹ (“ELC”) and Southern LNG Company, L.L.C.² (“SLNG”) (together “Companies”) are proposing to add natural gas liquefaction and exporting capabilities (“Elba Liquefaction Project”) to SLNG’s existing Elba Island liquefied natural gas (“LNG”) terminal in Chatham County, Georgia (“Terminal”) under Section 3 of the Natural Gas Act (“NGA”). Additionally, SLNG is proposing in this application to abandon its LNG truck loading facilities at the Terminal under Section 7(b) of the NGA.

1.1 INTRODUCTION

1.1.1 History of the Terminal

The Terminal, located on an 840-acre private island near Savannah, Georgia (“Elba Island”) (Figure 1-1), currently imports LNG for storage and revaporization using two LNG carrier (“LNGC”) berths, five LNG storage tanks, vaporization, send out facilities, and associated infrastructure. The Terminal’s current storage capacity is 11.5 billion cubic feet (“Bcf”), with 1,755 million cubic feet per day (“MMcf/d”) of peak vaporization and send out capacity. The Terminal is directly connected to three major pipelines, and indirectly connected to two others, and thus is readily accessible from the southeast and mid-Atlantic supply. The Terminal was placed in service in 1978, taken out of service in 1982, and reactivated in 2001.

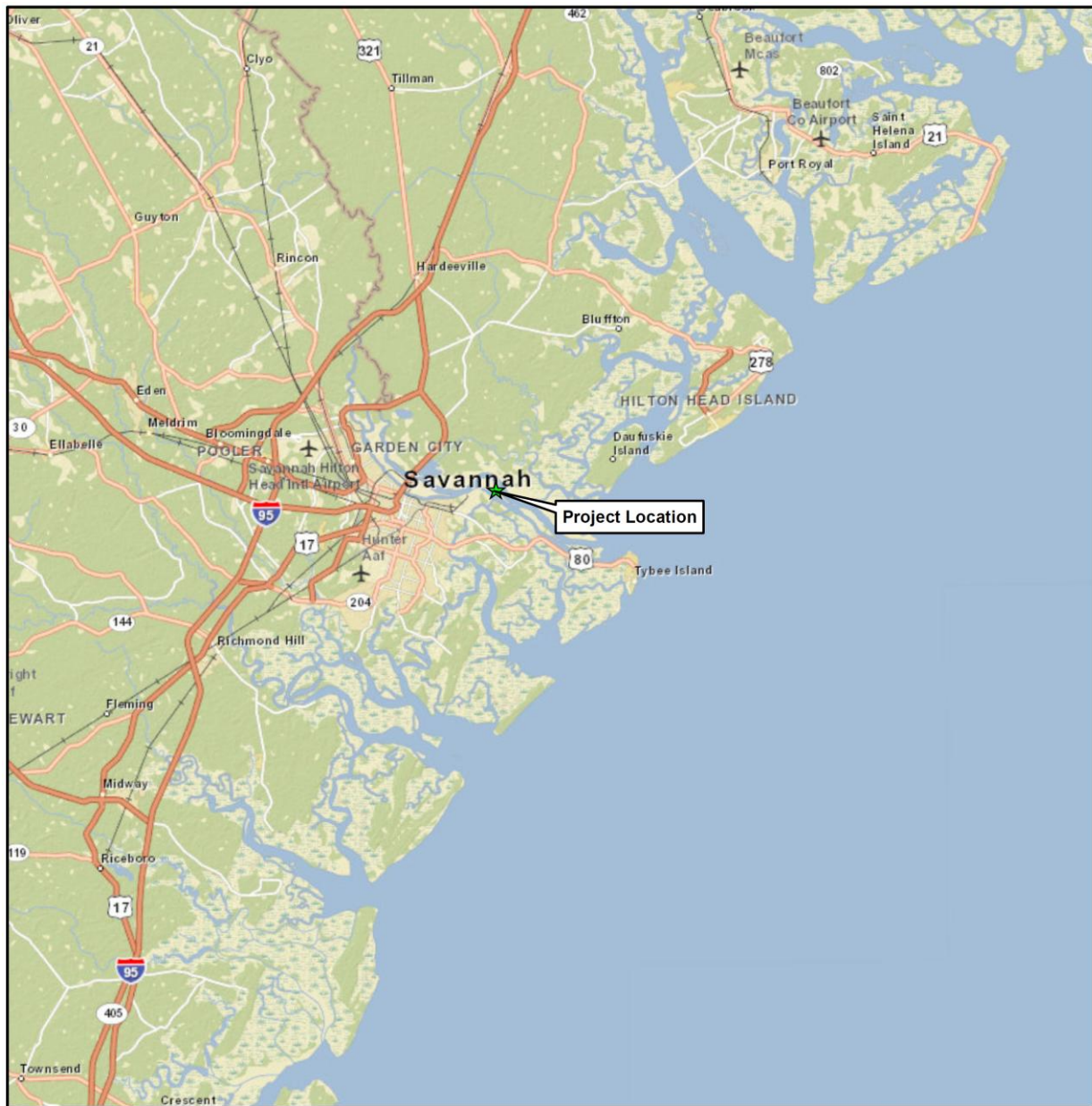
The original application for the construction and operation of the Terminal was filed in 1972 with the Federal Power Commission, predecessor to the Federal Energy Regulatory Commission (“FERC” or “Commission”), in Docket No. CP71-264. SLNG received authorization in 1972 and began construction in 1973. SLNG commenced operation in 1978 and received 55 LNG shipments from that time until 1980. From 1980 to 1982, SLNG provided peak-shaving service with the remaining inventory of LNG. Between 1982 and 2000, the Terminal operated on standby. In 2000 and 2001, FERC authorized the re-commissioning and expansion of the Terminal based on applications in Docket No. CP99-580 (Elba I Project). FERC issued a Certificate of Public Convenience and Necessity authorizing the re-commissioning and expansion of the Terminal on March 16, 2000 in Docket No. CP99-580-001, and on July 16, 2001, in Docket No. CP99-580-003.

In 2003, in Docket Nos. CP02-379-000 and CP02-380-000, FERC authorized SLNG to further expand the Elba Island facility to increase storage capacity from 4.0 Bcf to 7.3 Bcf, to increase marine safety and security by allowing construction of a new slip, and to increase the firm sendout rate from 446 MMcf/d to 806 MMcf/d, with maximum sendout from 675 MMcf/d to 1,215 MMcf/d (“Elba II Project”). The Elba II Project facilities were placed into commercial service on February 1, 2006.

In Docket No. CP06-470, FERC authorized additional facilities (“Elba III Project”) to expand the storage capacity of the Terminal by 8.44 Bcf and its vaporization capacity by 900 MMcf/d in two phases. The vaporization portion of Phase A of the Elba III Project, which increased the existing firm send out rate by 405 MMcf/d, was placed in service March 2010. The storage portion of Phase A, which increased the storage by 4.22 Bcf, was placed in service in July 2010. On August 2, 2011, SLNG requested that the

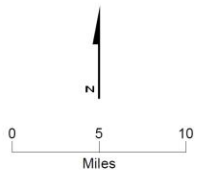
¹ Elba Liquefaction Company, L.L.C. is a Delaware limited liability company formed by Southern Liquefaction Company, LLC, a Delaware limited liability company, and unit of El Paso Pipeline Partners, L.P., and Shell US Gas & Power LLC, a Delaware limited liability company, and subsidiary of Royal Dutch Shell plc.

² Southern LNG Company, L.L.C. is a Delaware limited liability company and unit of El Paso Pipeline Partners, L.P. (“EPB”). Kinder Morgan, Inc. owns the general partner interest in EPB.



Legend

★ Project Location



Notes:
 1. Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

Figure 1-1
Project Location
 Elba Liquefaction Project
 Elba Liquefaction Company, L.L.C.
 Chatham County, Georgia

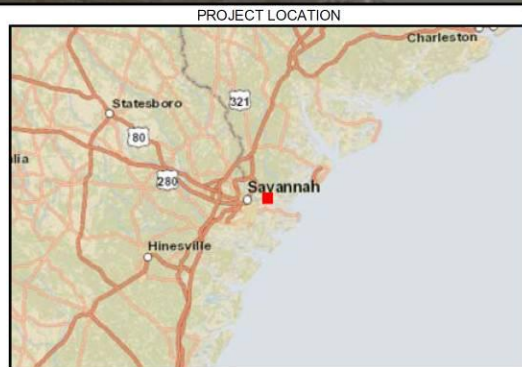
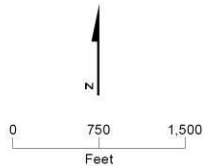
Commission vacate the Section 3 authorization it received for Phase B of the Elba III Project. On October 11, 2011, the Commission granted SLNG’s request. In Docket No. CP12-31, FERC authorized SLNG to install and operate a new 2,500 horsepower electric-driven boil-off gas (“BOG”) compressor unit and related facilities (“BOG Project”). The BOG Project was placed in service on February 1, 2013. Major facilities at the Terminal associated with the Project and the FERC Order authorizing them are summarized in Table 1.1-1. Terminal facilities are shown on Figure 1.1-1.

FERC Order	Description	Major Components
CP71-264	Original Southern LNG, Inc. (SLNG), Elba Import Project	<ul style="list-style-type: none"> • Marine berth • Three storage tanks • LNG sendout pumps • BOG compressor • Spill containment • Fire water system
CP71-276		<ul style="list-style-type: none"> • Two 13.25-mile-long, 30-inch-diameter pipelines (Elba to Port Wentworth), (“Twin 30s Pipeline”)
CP99-579 CP99-580 CP99-581 CP99-582	SLNG, Re-commission of Facilities	<ul style="list-style-type: none"> • Re-commission of facilities
CP02-379 CP02-380	Elba II, Expansion Project	<ul style="list-style-type: none"> • Two new marine berths (cut slip, off river) • One storage tank • Sendout expansion
PF06-14 CP06-470	Elba III, Expansion Project	Phase A <ul style="list-style-type: none"> • One storage tank • Sendout expansion • Remove river dock unloading facilities
CP12-31	SLNG, BOG	<ul style="list-style-type: none"> • Additional BOG compression



Legend

- Loading Arm Modifications
- Flare and Sub-Station Location
- Proposed Location of Liquefaction Units
- Proposed Project Boundary



Notes:

1. Transportation Source: Copyright: © 2013 Esri, DeLorme, NAVTEQ, TomTom
2. Imagery Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Figure 1.1-1

Elba Island Facilities
 Elba Liquefaction Project
 Elba Liquefaction Company, L.L.C.
 Chatham County, Georgia

1.1.2 Elba Liquefaction Project

The Elba Liquefaction Project will be located within areas that have been evaluated and assessed in conjunction with the FERC's review and approval of the Terminal.

The Elba Liquefaction Project facilities would permit gas to be received by pipeline from the Twin 30s Pipeline, treated, liquefied, sent to the Terminal's storage tanks, and then loaded from the Terminal's storage tanks onto LNGCs berthed at the existing marine facility. Liquefaction capacity is proposed to be installed in two phases. Phase I will include installation of six Movable Modular Liquefaction System ("MMLS") units that will add liquefaction capacity of approximately 1.5 million tonnes per annum ("MTPA"). Phase II will include up to an additional four MMLS units. When completed, the Elba Liquefaction Project will be capable of liquefying approximately 2.5 MTPA. The LNG will be exported using the Terminal's existing marine facilities. The Elba Liquefaction Project will be designed to allow the Terminal to be capable of providing bidirectional service. The bidirectional capability of the Terminal is not expected to result in an increase in the number of ship transits that were previously permitted for the Terminal. SLNG will modify certain of its operational procedures to accommodate the proposed liquefaction and export operations.

The Project will be constructed and operated in compliance with all applicable federal, state, and local regulations. The Environmental Report ("ER") includes Resource Reports 1 through 13 in compliance with the requirements of FERC regulations concerning ERs for NGA applications, 18 Code of Federal Regulations ("CFR") Sections 380.3 and 380.12, and in accordance with the FERC Order No. 665 (October 2005), *Pre-filing Procedures for Review of LNG Terminals and Other Natural Gas Facilities*.

This Resource Report 1 provides a general description of Companies' proposal to add LNG liquefaction and export capabilities/functionality under Section 3 of the NGA to the previously certificated Terminal facilities, and for SLNG to abandon its truck loading facilities at the Terminal under Section 7(b) of the NGA. Resource Reports 2 through 9 describe the existing environment by resource, the potential impacts associated with construction and operation of the Elba Liquefaction Project, and proposed measures to mitigate these impacts. Resource Report 10 describes the alternatives that were considered for the Elba Liquefaction Project. Resource Report 11 contains a description of the design, construction, operation, and maintenance measures that have been incorporated into the Elba Liquefaction Project to minimize potential hazards to the public from failure of the Elba Liquefaction Project components as a result of accidents or natural catastrophes. Resource Report 12, pertaining to polychlorinated biphenyls ("PCB"), is not applicable to the Elba Liquefaction Project as there is no existing PCB contamination at Elba Island to be disturbed. Finally, Resource Report 13 contains additional engineering and design information related to the Terminal. In the preparation of the ER, communications with various agencies occurred. Copies of all correspondence are included in Appendix 1.A of this Resource Report 1.

The data for the Resource Reports have been compiled based upon the review of United States Geological Survey ("USGS") topographic maps, recent aerial photographs, publicly available information, on-site investigations, and consultation with appropriate federal and state agencies. The Elba Liquefaction Project will be constructed and operated in accordance with all applicable federal, state, and local regulations.

1.2 PROPOSED FACILITIES

For the Elba Liquefaction Project, the Companies propose to install natural gas liquefaction capacity that will receive gas from a proposed interconnection with the Twin 30s Pipeline. The gas will be treated, liquefied, sent into the existing D-3 and/or D-5 LNG Storage Tanks, distributed to LNG Storage Tanks D-1, D-2 and D-4 as appropriate, at the Terminal, and then exported via LNGC using the existing LNGC berths to overseas markets.

The MMLS units will be installed in two phases: six MMLS units in Phase I and up to an additional four MMLS units in Phase II for a total liquefaction capacity of approximately 2.5 MTPA. The LNG will be exported using the Terminal's existing tanks and marine facilities.

In this application, Companies are proposing construction of a liquefaction facility connected to the Terminal in two phases pursuant to Sections 3 and abandonment of truck loading facilities pursuant to Section 7(b) of the NGA:

Phase I Major System Installations:

- Installation of six MMLS units equal to a nominal output capacity of 228 MMcf/d (equal to approximately 1.5 MTPA)
- Each MMLS unit will include installation of the following major systems:
 - a receiving system
 - an acid gas removal system
 - a molecular sieve dehydration system
 - a mercury removal system
 - a natural gas mixed refrigerant liquefaction system
 - a process control and instrumentation system
- Installation of a flare system to include both a high- and low-temperature system
- Modifications to the Terminal's piping to include new or additional pumps, additional dock piping to the loading/unloading arms, and additions to control systems to control the loading rate and to allow for export
- Installation of surge vessels on the future LNG loading piping
- Installation of defrost gas system
- Installation of demin water system
- Installation of amine storage tanks and transfer pumps, and unloading system
- Installation of acid gas thermal oxidizer(s)
- Installation of a natural gas liquid stabilizer (debutanizer) system
- Installation of stabilized condensate storage and loading facilities
- Installation of three individual components of the mixed refrigerant storage and distribution equipment
- Installation of waste water storage and loading facilities
- Installation of hot oil system
- Expansion of vapor handling systems to include BOG compression
- Modifications to firewater and safety systems
- Modifications to nitrogen and potable water systems
- Installation of a new instrument air and fuel gas system
- Modifications to storm water runoff systems
- Relocation, modification, and/or construction of various buildings including a control room, warehouse, expanded training center, and firewater pump house
- Modifications to facility to allow for equipment unloading
- New pipeline interconnect for the receipt of natural gas from the 13.25-mile-long Twin 30s Pipeline, including meter station and filter separator

- New blending station for BOG into the pipeline including a natural gas compressor
- Modification of the electric distribution non-jurisdictional facilities, including upgrading the radial feeder from commercial power to the Terminal's electrical substation to supplement existing power delivery
- Modifications to the BOG piping systems including installation of additional BOG pipeline compression
- Abandonment of LNG truck loading facility

Phase II Major System Installations:

- Installation of up to four MMLS units equal to a nominal output capacity of 152 MMcf/d (equal to approximately 1.0 MTPA)
- Installation of defrost gas system
- Each MMLS unit will include installation of the following major systems:
 - a feed gas receiving system
 - an acid gas removal system
 - a molecular sieve dehydration system
 - a mercury removal system
 - a natural gas mixed refrigerant liquefaction system
 - a process control and instrumentation system
- Potential upgrades to the Phase I scope including:
 - flare system
 - demin water system
 - amine storage system
 - acid gas thermal oxidizer
 - hydrocarbon condensate storage and loading
 - refrigeration component storage and unloading
 - waste water storage
 - hot oil system
 - firewater and safety systems
 - instrument air, nitrogen, and fuel gas systems
 - storm water runoff systems
 - electrical distribution systems

The MMLS unit concept is for small scale liquefaction capacity to be supplied via skid-mounted equipment packages prefabricated by the vendor that requires minimal work to erect at the site.

A minimal amount of trucking of condensate and refrigerant will be required for the liquefaction process. This hydrocarbon condensate, with vapor pressure similar to gasoline, will be exported from the Terminal by up to approximately 2 trucks per day. As part of the liquefaction of natural gas, the refrigeration section requires refrigeration components. These components are nitrogen, methane, ethylene, propane, and iso-pentane. The nitrogen and methane will be provided from within the future site. The ethylene, propane, and iso-pentane will be trucked in and unloaded at their respective storage facilities. The truck frequency for these 3 refrigeration components is expected to be much less often than for the hydrocarbon condensate.

The project also includes facilities for waste water storage, including facilities for truck export of this waste water. The waste water is mainly from the water in the pipeline gas, along with any used on decontamination of equipment. Within the MMLS, equipment exists to recycle this water. Build-up prevention of this water necessitates sending some to the waste water vessel for

truck exporting. Depending on the quality of this waste water, the final disposition and disposal means for this water will be determined.

Phase I will be put into service starting in 2016 and Phase II will be put into service as early as 2016. Detailed descriptions of the proposed Elba Liquefaction Project equipment and processes are provided in Resource Report 13, Engineering and Design Material.

1.3 MOVABLE MODULAR LIQUEFACTION SYSTEM (“MMLS”) TECHNOLOGY

The proposed liquefaction facilities at Elba Island will utilize MMLS technology, a proprietary technology involving offsite fabrication of modular system components that are delivered to, installed, and placed in service at the construction site. The MMLS consists of two major processing areas as well as product storage and loading areas. The processing areas are: 1) Gas Treating, and 2) Liquefaction. The Gas Treating step is designed to remove hydrogen sulfide (H₂S) and carbon dioxide (CO₂) from the natural gas feedstock using an amine contact absorption unit. Liquefaction takes place in the “Cold-Box” and refrigeration area within each MMLS unit where natural gas is liquefied by lowering its temperature to below its boiling point (-260 degrees F) through a multi-stage refrigeration process. The refrigerant consists of a hydrocarbon and nitrogen mixture.

1.4 PURPOSE AND NEED

The liquefaction facilities at Elba Island have been proposed due to the improved outlook for domestic natural gas production, owing to drilling productivity gains that have enabled rapid growth in supplies from unconventional, and particularly shale, gas-bearing formations in the United States (“U.S.”). Improvements in drilling and extraction technologies have coincided with rapid diffusion in the natural gas industry’s understanding of the unconventional resource base and best practices in drilling and resource development. These changes have rendered obsolete once prominent fears of declining future domestic natural gas production. As the NERA Economic Consulting (“NERA”) study commissioned by the U.S. Department of Energy (“DOE”) noted, the export of natural gas as LNG would provide “net economic benefits” to the U.S. economy. Further benefits provided by this project would include:

- Stimulated job creation, increased economic activity and tax revenues by increasing gas exploration and production, increasing pipeline construction and operations, constructing and operating the liquefaction and terminal facilities at Elba Island, and by an increase in associated support industries;
- Increased exports from the U.S., which would promote liberalization of global natural gas trade through fostering of a global, liquid, natural gas market;
- Raised domestic natural gas production capacity;
- An advance in national security and the security of U.S. allies through diversification of global natural gas supplies; and
- Increased economic trade and ties with foreign nations, including neighboring countries in the Americas; and the displacement of environmentally damaging fuels in those countries.

The economic benefits of the abundant natural gas supply would be amplified, not compromised, through the permitting of export projects, including the Elba Liquefaction Project, and there is a compelling need to provide for such economic benefits in the context of the U.S. economic recovery. The U.S. Department of Energy has found, through the NERA study *Macroeconomic Impacts of LNG Exports from the United States* (NERA 2012), that “for every one of the market scenarios examined, net economic

benefits increased as the level of LNG exports increased. There is also an increasing need among world markets for access to cleaner, affordable sources of energy, which this Project would expressly provide.

1.4.1 Location of Facility

The proposed Elba Liquefaction Project will be located at SLNG’s existing Terminal on Elba Island in Chatham County, Georgia (32°04.0 N 82°05.0 W), approximately 8.5 miles upstream from the mouth of the Savannah River. The Elba Liquefaction Project site is located within the footprint of the existing Terminal. This area is relatively level with an average elevation at approximately 11.5 feet (“ft”), and ranging from 7 ft to 18 ft above mean low water, as indicated in the 2006 and 2012 Geotechnical Reports (Terracon 2012) and a 2012 survey drawing by EMC Engineering Services. Work for the expansion will be performed within the existing Terminal boundaries to the extent practicable; however, Companies will seek off-site areas for Elba Liquefaction Project staging, warehouse yards, contractor offices, and parking (“wareyards”). Additionally, Companies will use newly constructed and existing roads located at the Terminal for access during construction and operation. The footprint of the proposed Elba Liquefaction Project facilities at the Terminal is shown on Figure 1.1-1.

Access to the Terminal from Savannah is from Elba Island Road, which is accessed from the Islands Expressway, a four-lane, divided highway. Elba Island Road is a two-lane paved road having a public section with a 25 miles per hour (“mph”) speed limit, and a private section having a 45 mph speed limit, standard 12-foot wide travel lanes and 2-foot wide paved shoulders. The access road becomes a private drive for the Terminal approximately 500 ft beyond the intersection with Islands Expressway.

Access to the Terminal from the Atlantic Ocean is via the Savannah River. The Savannah River has a Federal channel maintained (dredged/surveyed, etc.) by the U.S. Army Corps of Engineers (“USACE”). The channel is dredged to 42 ft mean low water (“MLW”) and the controlling width is 500 ft.

Transit distance from the Sea Buoy is 17 miles and the transit time to the Terminal is approximately 2.0-2.5 hours. Escort tugs (Tractor) are available from the Sea Buoy and make fast prior to the River/Channel transit.

Elba Island has two marine berths, constructed in a berthing pocket just off the main channel of the Savannah River. Each berth is designed to accept LNGCs up to the following criteria:

Length Overall (max.):	345 meters (1132 ft)
Beam (max.):	55 meters (180 ft)
Cargo Capacity:	267,000 cubic meters (max.)
Displacement:	177,000 Tonnes (max.)

The Terminal maintains a minimum depth of 42 ft MLW in the berth pocket through regular dredging and surveys. An available turning basin is also maintained and surveyed as appropriate.

The Savannah River is a Federal Regulated Navigation Area for LNGCs. In addition, the Terminal is subject to the requirements and regulations as specified in the U.S. Coast Guard (“USCG”) document entitled “The Savannah Area Liquefied Natural Gas (LNG) Vessel Management and Emergency Plan” (“Savannah Plan”) (USCG 2007). The Savannah Plan is periodically reviewed and updated to incorporate any new developments in the LNG vessel transit, transfer and departure procedures.

1.4.2 Abandonment of Truck Loading Facility

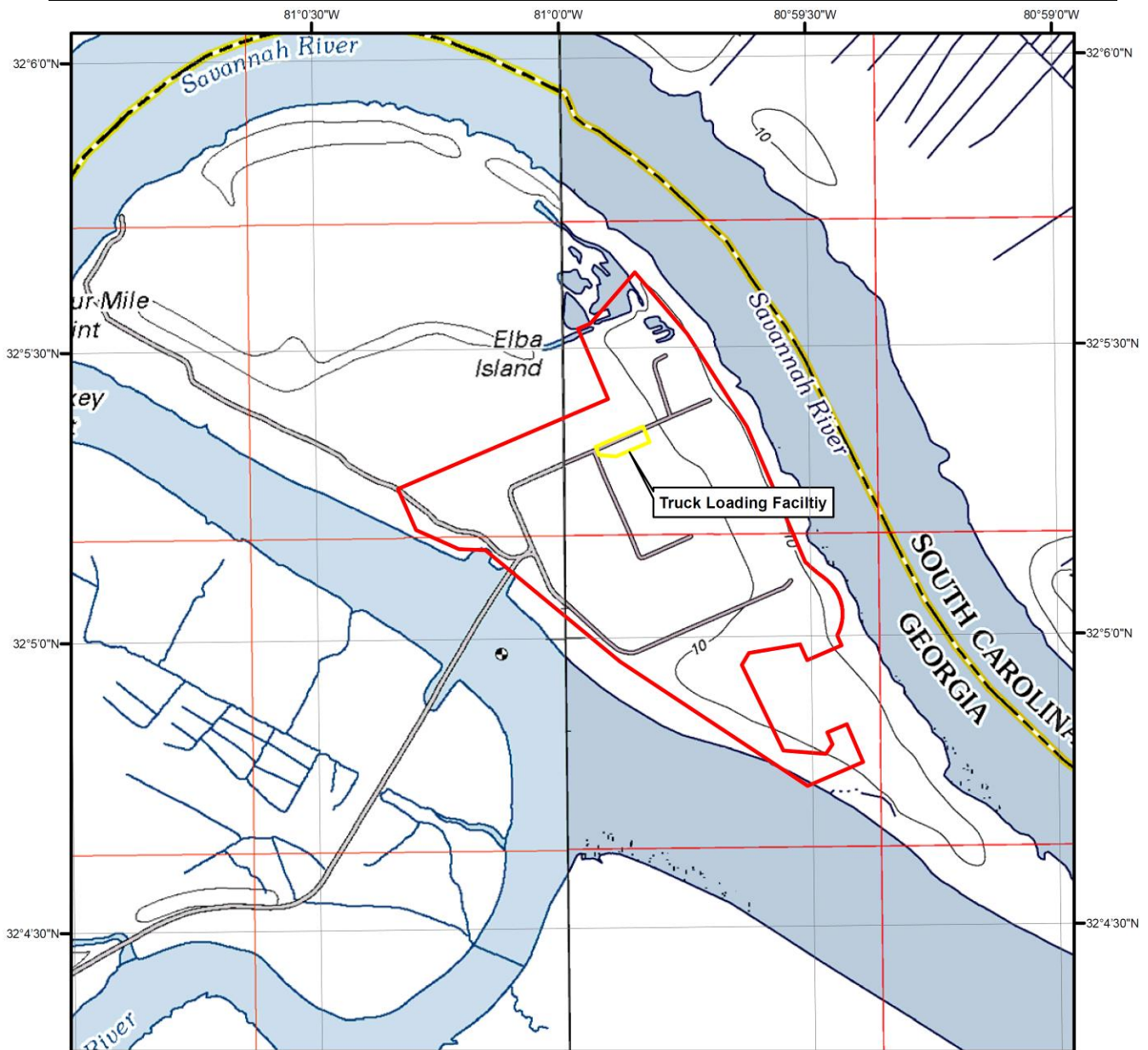
The Terminal, as initially authorized in 1972, included two stations and ancillary equipment to fill trucks with LNG. In Docket No. CP10-477, filed with the Commission on August 3, 2010, SLNG proposed to reactivate its existing truck loading facilities on Elba Island.

On August 15, 2012, SLNG withdrew its application to the FERC to reactivate the truck loading facilities at the Terminal. SLNG proposes to abandon by removal the truck loading facilities and utilize the area for construction and operation of its proposed MMLS units. Abandonment of the truck loading facilities would not affect service to SLNG's current customers.

The location of the Truck Loading Facility proposed to be abandoned in Phase I of the Elba Liquefaction Project is shown on Figure 1.4-1.

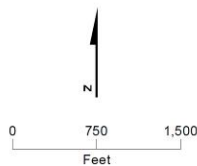
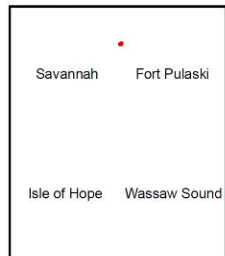
1.4.3 Location Maps, Detailed Route Maps and Plot/Site Plans

The general location of the Elba Liquefaction Project is depicted in Figure 1-1. The specific location of the Elba Liquefaction Project facilities are shown on Figure 1.1-1, and on the USGS topographic quadrangle excerpt (8-1/2-inch by 11-inch and scale of 1:24,000) located in Appendix 1.B of this report. A full-size USGS topographic quadrangle map is provided as a separate attachment to this report. Elba Liquefaction Project facility site plans and schematic drawings are provided in Resource Report 13.



Legend

- Truck Loading Facility Location
- Proposed Project Boundary



- Notes:
1. Transportation Source: Copyright © 2013 Esri, DeLorme, NAVTEQ, TomTom
 2. Imagery Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
 3. U.S. Geological Society: FORT PULASKI, GA-SC 2011; SAVANNAH, GA-SC 2012

Figure 1.4-1
Truck Loading Facility Abandonment
 Elba Liquefaction Project
 Elba Liquefaction Company, L.L.C.
 Chatham County, Georgia

1.5 LAND REQUIREMENTS

Elba Island is an 840-acre private island owned by SLNG and consists of dredge material disposed from the maintenance of the Savannah River’s navigation channel from the 1800s to mid-1900s. The Elba Liquefaction Project’s area footprint will be minimized to facilitate the proposed modifications to the Terminal for export functionality. Construction of the Elba Liquefaction Project facilities is anticipated to occur within the existing footprint of the Terminal.

Temporary access to construction sites at the Terminal will be required so that the contractor may move personnel, equipment, and material to the Elba Liquefaction Project construction areas. Access to the Elba Liquefaction Project area will be by roads currently used for access to the Terminal and used during construction of the previous Terminal expansion projects. Current roads at the Terminal may be modified and new roads may be constructed at the Terminal to access the Elba Liquefaction Project facilities. Additionally, contractor offices and parking for construction personnel will be required at off-site locations. Companies will attempt to site the Elba Liquefaction Project wareyards in areas that have previously been used for such activities.

1.6 CONSTRUCTION PROCEDURES

The Elba Liquefaction Project facilities will be designed, constructed, operated, and maintained in accordance with the U.S. Department of Transportation (“DOT”) Federal Safety Standards for Liquefied Natural Gas Facilities, 49 CFR Part 193. The facilities will also meet the National Fire Protection Association (“NFPA”) 59A LNG Standards. The marine cargo transfer system and any appurtenances found between the LNGCs and the last valve immediately before the LNG storage tanks will comply with the USCG regulations for Liquefied Natural Gas Waterfront Facilities, 33 CFR Part 127 and Executive Order 10173. Safety controls and the role they play are addressed in more detail in Resource Report 11.

1.6.1 Clearing, Grading, and Excavation

The proposed Elba Liquefaction Project areas currently have a range of surface covers ranging from un-vegetated areas to wooded areas. Regardless of the current surface cover, the construction areas will be cleared, grubbed, filled, and graded to provide adequate surface drainage. In addition to the abandonment of the truck loading facilities discussed in Section 1.4.2, warehouse buildings will be demolished to accommodate new Elba Liquefaction Project facilities.

The proposed Elba Liquefaction Project areas will be improved with an aggregate surface to provide a working platform for construction. Improved areas will be designed for the expected construction traffic, particularly dump trucks and cranes, as well as for potential future construction.

The compacted thickness of the aggregate will not be less than 6 inches. The required compacted thickness of the aggregate will be established based on the design construction traffic and California Bearing Ratio (“CBR”) of the subgrade, which will be measured during Project design and geotechnical investigation.

If the subgrade CBR is less than 3, then the aggregate will be underlain by a heavy, non-woven geotextile fabric to act primarily as a separator between the fine-grained subgrade and the aggregate. No vehicle traffic will be allowed on an area of the geotextile until the initial lift of aggregate has been placed to protect the geotextile. The minimum loose lift thickness of this initial lift shall be 6 inches.

1.6.2 Roads

Permanent roads may need to be constructed at the Terminal to provide truck access to the expanded facilities, and in particular, the MMLS units for maintenance and supply of mixed refrigerants. In some areas, the new roads will use the same alignment as existing unpaved roads, and consideration will be given to utilizing these unpaved roads as part of the pavement sub-base beneath the new asphalt pavement. To minimize impacts, Companies will use construction practices outlined in FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* ("Plan") (FERC 2003a) (Resource Report 7, Appendix 7.A).

1.6.3 Materials and Equipment Delivery

The construction and installation of the MMLS units will be based on modular construction. Materials and equipment for the Elba Liquefaction Project will be shipped from the place of origin and transported via truck or barge. Trucks delivering materials and equipment will use existing public and Terminal roads for access. Additional access roads may be constructed at the Terminal for the Elba Liquefaction Project where necessary.

A modular transportation report will be developed by ELC that will include the following sections:

- Module Sizes and Weights
 - The weight, length, width, and height limits for the modules to be transported.
 - Clear definitions for the limits (e.g., out-to-out dimensions of the module to be defined by items projecting from the module frame on the sides, top or bottom, such as lifting lug, temporary support, pipe spool).
 - Clear directions if changes are required.

Due to overload and roadway width limitations, special care will be exercised when setting these limits.

- Module Types (e.g., Pipe Racks, Equipment Structures)
 - The mode of transportation from the module yard to the Terminal.
 - If self-propelled module transporters ("SPMT") are used, the report will detail how the SPMT will support the load and if temporary transport beams are required.
 - The expected handling of each type of module will be covered (e.g., elevated base frame, buried base frame).
- Land Transportation Design Criteria
 - The research and coordination support network will be highlighted for road transport at each site of the moves (module yard, site).
 - The cross road transport (including SPMTs) loads and load combinations will be defined. The design load criteria will be challenged to be sure it meets the specific route. Wind load also will be included in these criteria.
 - To accommodate turns for long modules, modules may be designed to accommodate an additional moment based on an eccentricity derived from the distance between the main columns and the total module weight.

1.6.4 Construction of Facilities

1.6.4.1 Liquefaction Facilities

The MMLS units will be constructed in two phases. Phase I will include installation of six MMLS units that will add liquefaction capacity of approximately 1.5 MTPA. Phase II will include up to an additional four MMLS units. Both phases of construction will require pile-supported foundations for each MMLS unit.

1.6.4.2 LNG Carrier Loading

SLNG proposes an LNG export loading capacity of 10,500 cubic meters per hour (m³/hr). To enhance the ability to load LNG from the Terminal's storage tanks, through the LNG transfer lines and loading arms onto the LNGC, SLNG will modify equipment to be used for the loading operation.

To accomplish the desired LNGC loading rate, the following equipment or systems will be reviewed to determine if current setup is adequate, and where necessary, the equipment will be upgraded:

- **Vapor Return Line:** The vapor return line is sized to allow an equivalent LNG flow of 10,500 – 12,000 m³/hr back to the LNGC. During the LNGC loading operation, larger quantities of vapor are generated and must be transported back through the vapor line to the Terminal. Verification is needed to ensure that 1) the vapor line capacity is adequate for this service and 2) whether cryogenic blowers to return vapor from the docks are needed.
- **External LNG Pumps:** New LNG loading pumps will be installed to transfer LNG from the Terminal LNG Storage Tanks to the LNGC through the existing dock unloading lines. Two (2) new pumps are envisioned to transfer from D-1, D-2 and D-3, two (2) new pumps from D-4, and two (2) new pumps from D-5.
- **Surge Drum:** Loading an LNGC from the Terminal could result in a greater potential for surge in the loading/unloading system due to the longer line from the pumps to the emergency shutdown (“ESD”)-1 valves. A hydraulic surge pressure study will be completed to determine whether a surge drum is required or that the surge pressures at the maximum permissible LNGC loading rate will stay below the maximum allowed by the system's design pressure. The line also will be required to withstand any surge forces that may be present during an ESD-1 or ESD-2.
- **Impacts associated with the proposed modifications will be localized within the existing facility boundaries and are anticipated to be minor; however, all construction or operational activities will adhere to FERC's Plan and Wetland and Waterbody Construction and Mitigation Procedures (“Procedures”) (FERC 2003b) that have been adopted for this Elba Liquefaction Project. A copy of the Plan and Procedures is included in Appendix 2.A (Procedures) and Appendix 7.A (Plan).**

1.6.4.3 Piping

Early in the design process, actual thickness measurements will be acquired (at expected weld areas and/or cut areas) at the designated tie-in locations to validate the tie-in location. Piping systems will be designed for loads such as internal pressure, weight of pipe, fittings, insulation and process fluids, wind loads, seismic loads, thermal expansion/contraction, pressure safety valve reaction and structural deflections.

Surge analyses will be included on piping systems (such as LNG loading systems, firewater systems, etc.) where valves are quickly closed to ensure the piping system is adequate for the expected pressure pulses.

1.6.4.4 Pipeline Testing

All testing will be carried out in accordance with applicable city, state, and federal codes and requirements. Piping will be tested using hydrostatic or pneumatic testing.

1.6.4.5 Site Foundations

The soils at the Elba Liquefaction Project site have four distinct layers down to -95 ft, according to the 2006 Geotechnical Report prepared for the Terminal. Equipment and structures, including pipe racks, will be supported by pile foundations driven into the stiff, sandy clay in Layer 4. Existing geotechnical report information recommends that pile foundations be supported by 80-foot minimum length, 12-inch square minimum cross section pre-stressed concrete piles.

Future geotechnical investigations will define site-specific requirements and 100-year base flood elevation. All key facilities and equipment foundations (pumps, electrical, etc.) will be elevated above base flood elevation.

1.6.4.6 Buildings

Buildings to be constructed as part of the Elba Liquefaction Project will be designed in accordance with the American Society of Civil Engineers (“ASCE”) 7-10 and International Building Code (“IBC”) 2012.

1.6.5 Storm Water Drainage

Local drainage networks are anticipated to be constructed for each storm water stream with detailed engineering to determine their final disposition.

Many of the proposed Project areas will be partially drained to newly constructed spill containment systems. Each of these spill containment systems will terminate into spill impoundments that have sump pumps to remove any uncontaminated storm water from the impoundment to the separate storm water drainage network. Project areas that do not drain into these spill containment systems will be graded to drain into drainage ditches that are isolated from the spill containment systems. These drainage ditches will be routed and sloped as required for drainage.

1.6.6 Spill Containment

Spill and leak control for secondary containment of LNG will be designed in accordance with NFPA 59A, Standard for the Production, Storage and Handling of LNG.

Additional requirements for design of the drainage and impoundment systems are provided in NFPA 30, Flammable and Combustible Liquids Code. Any drains that flow under roads will be verified to be in compliance with NFPA 59A.

NFPA 59A specifies that spill impoundments at storage tank areas are generally sized to contain 110% of the volume of the largest storage tanks in the area. Any spill impoundments for process, vaporization, and transfer areas will generally be sized to contain the maximum flow of any flammable liquid line in the area flowing for a duration of ten minutes.

1.6.7 Fire Water System

The required firewater flow rate is estimated at 8 to 13 m³/minute (2,000 – 3,500 gallons per minute) for the firewater ring main. The exact required capacity will be defined during a detailed fire safety assessment and will meet industry standards.

The total available firewater will be sufficient for six hours of water supply at the maximum pumping rate, unless a detailed risk study otherwise requires. A guaranteed backup via other supply sources, such as a surface water intake system, could lead to a reduction of the freshwater storage requirement.

The existing firewater system at the site will be utilized and expanded based on hydraulic modeling of the firewater system. Hydraulic modeling of the firewater system will be conducted based on final Elba Liquefaction Project layout and design. SLNG will utilize data from hydraulic modeling of the existing firewater system that has been conducted within the last five years to evaluate future firewater system needs.

1.6.8 Construction Schedule

Companies' construction schedule will be finalized at the conclusion of the front-end engineering study of the proposed Elba Liquefaction Project .

1.6.9 Environmental Compliance, Training, and Inspection

Companies are committed to designing, building, and conducting their operations in ways that minimize adverse impact on human health and the environment. Companies will ensure that applicable environmental requirements are incorporated in construction documents, will conduct environmental training, will employ at least one environmental inspector ("EI"), and will provide routine monitoring during all phases of construction, cleanup and restoration.

Companies will include Elba Liquefaction Project-specific environmental requirements that will be part of the construction contract documents. These documents and requirements will include applicable permits, FERC's Plan and Procedures, FERC Section 3 authorization conditions, and other environmental requirements. Companies will effectively communicate to their contractor(s) the environmental requirements for the Elba Liquefaction Project. If, during construction, a contractor is found to be in violation of an environmental requirement, Companies will require an immediate correction of the problem, issue a stop work order if necessary, and resolve any disciplinary issue with the contractor.

Before any construction begins, Companies will conduct intensive environmental training for the inspector(s) to familiarize them with the specific conditions and issues associated with the Elba Liquefaction Project. Separate training of the contractor personnel will also be undertaken to familiarize all personnel with the environmental requirements of the Elba Liquefaction Project. As new personnel are assigned to the Elba Liquefaction Project, Companies will conduct training for these personnel as well.

Companies consider the role of the EI to be a critical part of the Construction Management Team. During construction, the EI will have the authority at all times to assess and evaluate any construction-related activity to confirm compliance with the environmental conditions of all local, state, and federal agency permits or certificates. Companies will be responsible for the selection, employment, training, and guidance of the EI. The duties of the EI are to monitor and report on those activities designated as environmental scope of work in the construction contracts, such as erosion control, revegetation, construction signage, environmental permit compliance, threatened and endangered species protection, and fencing of environmentally sensitive sites. The role of the EI is not to inspect the physical construction of the facilities (welding, lowering-in, pressure testing, etc.) but to provide guidance to other inspectors monitoring these activities related to the conditions of environmental permits or authorizations.

The EI will attend the daily meetings of the Construction Management Team. The EI will report, as appropriate, to the Chief Construction Inspector and Construction Manager at the daily meetings on all

environmental-related activities of the construction contractor(s). Companies' Environmental Affairs personnel will maintain contact with the EI at the appropriate levels throughout the Elba Liquefaction Project.

The EI will be present onsite on a daily basis during construction of the Elba Liquefaction Project. The objective is to keep the Elba Liquefaction Project moving forward within the guidelines established by Companies and the regulating environmental agencies. The EI will work with the construction foreman/crew to provide interpretation and enforcement of all local, state and federal environmental regulations. If an agreement on an interpretation of an environmental condition cannot be reached between the EI and construction personnel, the issue will be raised to the environmental project manager and Companies' project manager as necessary. The field crews will then implement the interpretation and final resolution.

The environmental project manager and Companies' project manager will review daily reports generated by the EI. The EI will also complete field reports for agency notification. The environmental project manager and Companies' project manager will review all agency notifications. Any agency notifications required by permit conditions will be made by the environmental project manager.

1.7 OPERATION AND MAINTENANCE

SLNG has on file with the FERC Office of Pipeline Safety ("OPS") and USCG, operations manuals (including emergency procedures and security plans) for the current facilities, including the Elba II and III Projects. Companies will update the manuals as necessary and submit amendments to the agencies prior to commissioning the Elba Liquefaction Project.

In general, SLNG operates under a maintenance regime that includes corrective and preventative maintenance plans. The plans include written procedures consistent with corporate policy and federal standards, including regulations at 33 CFR Part 127.401 and 39 CFR Part 193 subpart G. Trained operations technicians implement the maintenance plans and report to the Maintenance Supervisor. Companies will amend the maintenance plans to include the proposed facility modifications.

For each project phase, all MMLS units within that phase will be ready for start up before the introduction of feed gas.

1.8 FUTURE EXPANSION OR ABANDONMENT OF FACILITIES

1.8.1 Future Expansion

ELC and SLNG have no plans for future expansion of the Terminal beyond those proposed in this application.

1.8.2 Future Abandonment of Facilities

SLNG has no plans for abandonment of any of the Terminal facilities aside from the abandonment discussed in Section 1.4.2.

1.9 PERMITS AND APPROVALS

Construction, operation, and maintenance of the proposed Elba Liquefaction Project will be in accordance with all applicable federal, state, and local permits and approvals. The environmental permits and

approvals, administering agencies, and status of correspondence required for the Elba Liquefaction Project are presented in Table 1.9-1.

Table 1.9-1

PERMITS, APPROVALS, AND CERTIFICATIONS REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE ELBA LIQUEFACTION PROJECT

Permit/Approval	Administering Agency	Contact	Initiated Process	Status
Federal				
Section 3 and Section 7 of the Natural Gas Act	Federal Energy Regulatory Commission	Kimberly D. Bose, Secretary Federal Energy Regulatory Commission 888 First Street, N.E. Room 1A Washington, D.C. 20426	Filed Request to Initiate NEPA Pre-Filing Process on 12/05/2012, in Docket No. PF13-3-000. Application to be filed concurrently with Elba Liquefaction Project.	Initial Consultation Meeting held on 02/12/2013. Approval of pre-filing request on 03/01/2013. Open house held in Savannah, GA on 03/12/13.
Authorization to Import and Export Natural Gas, including LNG	U.S. Department of Energy (DOE)	U.S. Department of Energy 1000 Independence Ave., SW Washington, DC 20585 202-586-5000	Free Trade Agreement (FTA) - SLNG has received authorization to export LNG to FTA countries. NON-FTA – SLNG applied for authorization to export LNG to non-FTA countries on 08/31/12.	FTA – FE Docket No. 12-54-LNG - SLNG has received authorization to export LNG to FTA countries. NON-FTA – FE Docket No. 12-100-LNG - Notice was published in the Federal Register on 10/17/12. The American Public Gas Association and Sierra Club filed motions to intervene and protest on 12/17/12. SLNG filed an Answer to Motions to Intervene, Protests, and Comments on 01/02/13. Sierra Club filed a Renewed Motion to Reply and Reply Comments on 01/17/13.
Waterway Suitability Assessment (WSA)	U.S. Coast Guard (USCG)	LCDR Mark Sawyer MSU Savannah 100 W. Oglethorpe Ave. Ste. 1017 Savannah, GA 31401 912-652-4353, ext. 205	Letter dated 08/29/12 sent to USCG requesting confirmation that a new WSA is not necessary. Received USCG letter dated 09/11/12 that a new WSA is not necessary.	USCG replied by letter dated 09/11/12 confirming that a new WSA is not necessary.

Table 1.9-1

PERMITS, APPROVALS, AND CERTIFICATIONS REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE ELBA LIQUEFACTION PROJECT

Permit/Approval	Administering Agency	Contact	Initiated Process	Status
Safety and Security Review	U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration (PHMSA)	Ms. Melanie Barber Emergency Support and Response Officer, Office of Pipeline Safety, PHMSA 1200 New Jersey Avenue, SE Washington, DC 20590	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project and to determine the agency's willingness to participate in the NEPA pre-filing review process.	02/22/2013 – In a telephone conversation DOT stated that a project number and project manager have not yet been assigned.
Endangered Species Act (ESA) Section 7 Consultation	U.S. Fish and Wildlife Service (USFWS)	Strant Colwell, Supervisory Biologist 4890 Wildlife Drive, NE Townshend, GA 31331 912-832-8739	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project and to determine the agency's willingness to participate in the NEPA pre-filing review process.	2/22/2013 – In a telephone conversation USFWS stated that they will participate in the project.
Section 7 Consultation (ESA), Marine Mammal Protection Act, Magnuson–Stevens Fishery Conservation and Management Act (MSFCMA)	National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS)	Jaclyn Daly Charleston Branch Office P.O. Box 12559 Charleston, SC 29422-2559 217 Fort Johnson Road Charleston, SC 29412 843-762-8610	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project and to determine the agency's willingness to participate in the NEPA pre-filing review process.	NOAA will participate in the Pre-Filing process
Clean Water Act, Section 404; Rivers and Harbors Act, Section 10	U.S. Army Corps of Engineers (USACE), Savannah District	Lisa Lovvorn U.S. Army Corps of Engineers Savannah District 100 W. Oglethorpe Ave. Savannah, GA 31402 912-652-5558	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project and to determine the agency's willingness to participate in the NEPA pre-filing review process.	12/17/12 - Lisa Lovvorn made contact and stated that Project Number SAS-2012-01038 is now assigned to the project.

Table 1.9-1

PERMITS, APPROVALS, AND CERTIFICATIONS REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE ELBA LIQUEFACTION PROJECT

Permit/Approval	Administering Agency	Contact	Initiated Process	Status
Construction Within a Floodplain	Federal Emergency Management Agency (FEMA), Region IV	3003 Chamblee Tucker Road Atlanta, GA 30341 770-220-5200	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project and to determine the agency's willingness to participate in the FERC pre-filing process.	
State				
<i>Georgia</i>				
Listed Species Consultation	Georgia Department of Natural Resources, Wildlife Resources Division (GDNR, WRD)	Katrina Morris, Environmental Review Coordinator Georgia Department of Natural Resources Wildlife Resources Division 2065 Highway 78 SE Social Circle, GA 30025 770-918-6411	Correspondence sent on 03/28/13 to introduce the Elba Liquefaction Project.	
Section 401 Water Quality Certification	GDNR, Environmental Protection Division (GEPD)	Dale Caldwell Coastal District, Brunswick Office Georgia EPD 400 Commerce Center Drive Brunswick, GA 31523 912-506-9374	Georgia has a joint Section 404/401 application process.	
Clean Air Act, Prevention of Significant Deterioration (PSD) Review Title V	Georgia EPD	Mr. Jac Capp Program Manager Stationary Source Permitting Program Air Protection Branch Environmental Protection Division 4244 International Parkway, Suite 120 Atlanta, GA 30354-3906 404-363-7000	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project.	03/07/13 – Pre-application meeting held with Georgia EPD to review the Elba Liquefaction Project.
Coastal Zone Management Act Coastal Zone Consistency	GDNR, Coastal Resources Division	Kelie Moore Georgia Department of Natural Resources Coastal Resources Division One Conservation Way Brunswick, GA 31520 912-264-7218	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project. Coastal Zone Consistency will be determined in connection with permits issued for the Elba Liquefaction Project.	
National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges from Construction Activities (General Permit No. GAR 100002)	GDNR	Coastal District, Brunswick Office Georgia EPD One Conservation Way Brunswick, GA 31520-8687 912-264-7284	To be submitted prior to construction.	

Table 1.9-1

PERMITS, APPROVALS, AND CERTIFICATIONS REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE ELBA LIQUEFACTION PROJECT

Permit/Approval	Administering Agency	Contact	Initiated Process	Status
National Historic Preservation Act (NHPA), Section 106 Consultation	GDNR, Historic Preservation Division (HPD)	Dr. David Crass Historic Preservation Division Georgia Department of Natural Resources 34 Peachtree St. NW Atlanta, GA 30303 404-656-2840	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project and to request review of survey methodologies.	01/04/13 – GDNR HPD acknowledged receipt of Project information.
NHPA, Section 106 Consultation	Catawba Indian Nation	Chief Gilbert Blue 996 Avenue of the Nations Rock Hill, SC 29730 803-366-4792	Consultation to be conducted in coordination with Georgia State Historic Preservation Office (SHPO).	
NHPA, Section 106 Consultation	Cherokee of Georgia Tribal Council	Chief Tall Oak Martin Cherokee of Georgia Tribal Council PO Box 1019 Saint George, GA 31562	Consultation to be conducted in coordination with Georgia SHPO.	
NHPA, Section 106 Consultation	Creek Nation of Oklahoma	Bill S. Fife, Principal Chief P.O. Box 580 Okmulgee, Oklahoma 74447	Consultation to be conducted in coordination with Georgia SHPO.	
NHPA, Section 106 Consultation	Eastern Band of Cherokee Indians	Principal Chief Michell Hicks P.O. Box 455 Cherokee, North Carolina 28719 828-497-7000	Consultation to be conducted in coordination with Georgia SHPO.	
NHPA, Section 106 Consultation	Georgia Tribe of Eastern Cherokee	Dr. Lucian Lamar Sneed Historian and Administrative Director Georgia Tribe of Eastern Cherokee P.O. Box 1915 Cumming, GA 30028 770-888-9856	Consultation to be conducted in coordination with Georgia SHPO.	
NHPA, Section 106 Consultation	Lower Muscogee Creek Tribe	Chief Vonnie McCormick Lower Muscogee Creek Tribe Route 2, Box 360 Whigham, GA 39897	Consultation to be conducted in coordination with Georgia SHPO.	
NHPA, Section 106 Consultation	Muscogee (Creek) Nation of Oklahoma	Tim Thompson, Cultural Advisor P.O. Box 580 Okmulgee, OK 74447 918-756-8700	Consultation to be conducted in coordination with Georgia SHPO.	
NHPA, Section 106 Consultation	Poarch Creek Indians	Chairman Buford Rolin 5811 Jack Springs Road Atmore, AL 36502 334-368-9136	Consultation to be conducted in coordination with Georgia SHPO.	

Table 1.9-1

**PERMITS, APPROVALS, AND CERTIFICATIONS REQUIRED FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE
ELBA LIQUEFACTION PROJECT**

Permit/Approval	Administering Agency	Contact	Initiated Process	Status
<i>South Carolina</i>				
South Carolina Coastal Zone Management Program	South Carolina Department of Health and Environmental Conservation (SCDHEC), Ocean and Coastal Resource Management	John Cox Coastal Zone Consistency Coordinator 1362 McMillan Ave. Suite 400 Charleston, SC 29405 843-953-0860 john.cox@dhec.sc.gov	Correspondence sent on 12/07/12 to introduce the Elba Liquefaction Project.	SCDHEC responded that they would not comment unless dredge materials were placed in SC.

1.10 AGENCY/LANDOWNER CONSULTATIONS

Companies have endeavored to include landowners, regulatory and resource agencies, and others in the early planning stages of the proposed Elba Liquefaction Project. As discussed below, federal, state, and local agencies were given the opportunity to comment on the Elba Liquefaction Project during the National Environmental Policy Act (“NEPA”) pre-filing review process in Docket No. PF13-3-000. Correspondence with federal, state, and local agencies can be found in Appendix 1.A. Companies will file any additional correspondences and approvals with FERC upon receipt. Companies will obtain all necessary permits, clearances, and licenses related to the Elba Liquefaction Project, and will observe and comply with all federal, state, and local laws, ordinances, and regulations governing the Elba Liquefaction Project.

1.10.1 Agency Consultations

SLNG initiated an effort early in the proposed Elba Liquefaction Project to work with all federal, state, and local regulatory agencies with an interest in the Elba Liquefaction Project. In order to solicit input and guidance to ensure that the proposed Elba Liquefaction Project maintains compliance with regulatory policies, SLNG mailed Elba Liquefaction Project consultation letters, including a map of the Elba Liquefaction Project area, to all agencies known to have potential regulatory jurisdiction over the Elba Liquefaction Project as shown in Table 1.9-1. Companies will continue to consult with the regulatory agencies to solicit input and to obtain data germane to assessing potential environmental impacts.

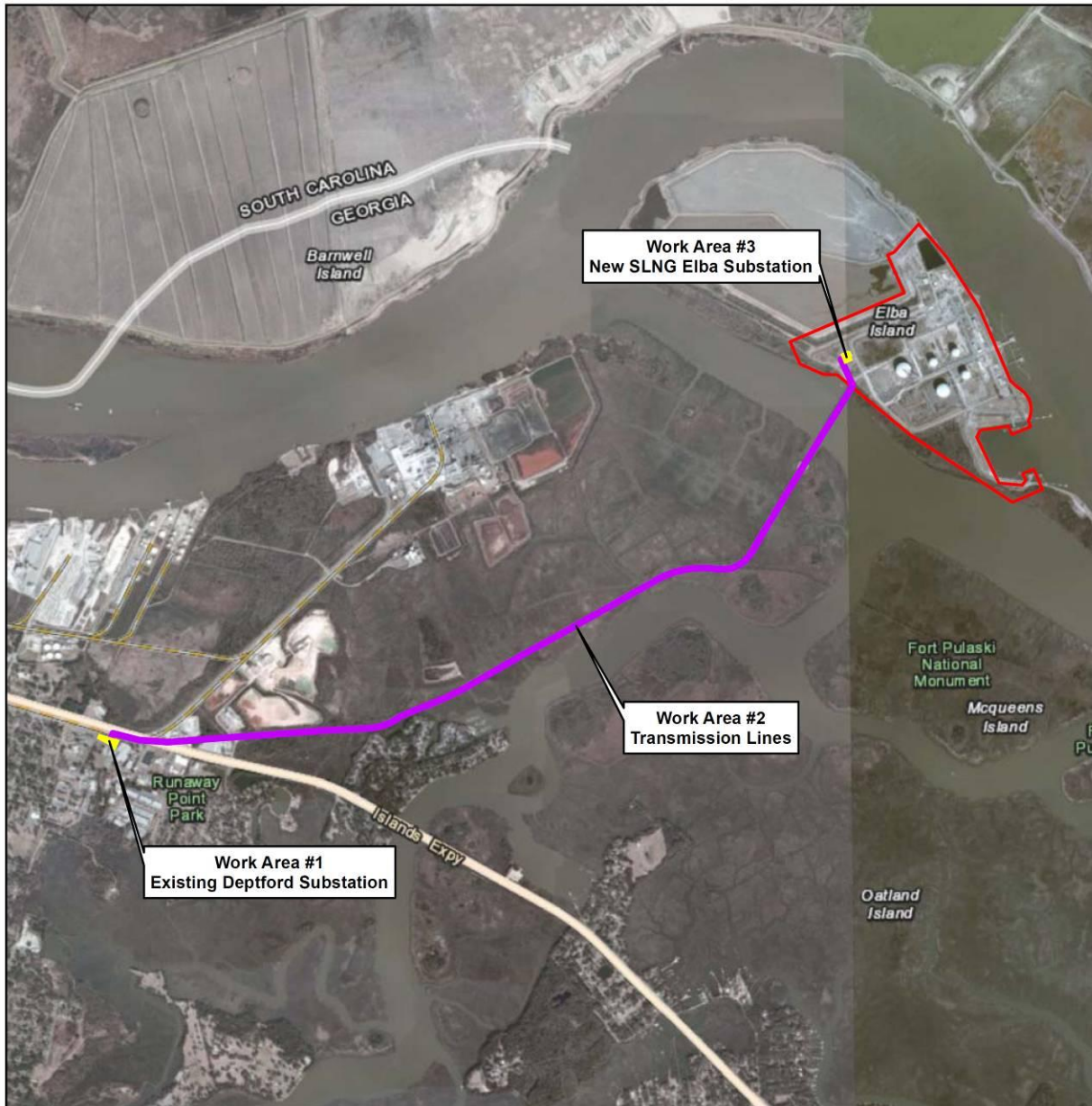
1.10.2 Affected Landowners

The Elba Liquefaction Project facilities will be constructed entirely within the confines of Elba Island, which SLNG owns in fee. There are no affected landowners or landowners within 1/2-mile of the Terminal; however, Companies may require offsite locations for contractor offices, parking, and warehouse yards. Companies will identify landowners in the vicinity of these offsite locations and will make notifications in compliance with 18 CFR Part 380.12(c)(10). Construction contractors will use public roads to transport materials and personnel to the site. Companies have contacted officials in the Elba Liquefaction Project area as part of its public participation plan, and hosted an open house during the NEPA pre-filing review process as required by NEPA and the Council on Environmental Quality to engage the public during early project development.




1.11 NON-JURISDICTIONAL FACILITIES

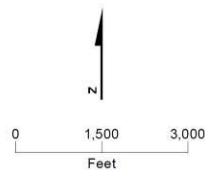
Companies will require additional electric power to supply the Elba Liquefaction Project facilities. The nominal electrical power demand for the Project is estimated at 200 megavolt amperes (“MVA”). The Georgia Power transmission system in the area of the Project is rated at 115 kilovolts (“kV”), 60 Hertz (“Hz”). Initial discussions with Georgia Power indicate that this line has a total capacity of 93 MVA. It is anticipated that this line will need to be upgraded to provide the power required by the Elba Liquefaction Project.

Georgia Power will acquire additional land and extend the fence line at its existing Deptford Substation to accommodate a bus-tie breaker and a second 115 kV line to Elba Island (Figure 1.11-1). Georgia Power also will reconfigure the 115 kV lines into the Deptford Substation to best accommodate the new load as well as install an additional 60 megavolt ampere reactive (“MVAR”) capacitor. Additional right-of-way will be acquired to construct the new 115 kV line to Elba Island, and to rebuild the existing 115 kV line to 200 MVA. A new 115/25 kV substation will be constructed at the Terminal with 200 MVA of capacity, low side bank breakers, bus tie breakers and 25 kV feeders. A 60 MVAR capacitor bank also will be installed at the Elba Island Substation.



Legend

-  Proposed Power Line Modifications
-  Proposed Sub-Station Modifications
-  Proposed Project Boundary



Notes:

1. Transportation Source: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
2. Imagery Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Figure 1.11-1
Non-Jurisdictional Facilities
 Elba Liquefaction Project
 Elba Liquefaction Company, L.L.C.
 Chatham County, Georgia

1.12 FOUR-FACTOR TEST

Under NEPA, the FERC may need to consider the environmental impact of related non-jurisdictional facilities that would be constructed upstream or downstream of the jurisdictional facilities for the purpose of delivering, receiving, or using the proposed gas volumes. The extent of the Commission’s analyses of non-jurisdictional facilities depends on the Commission’s determination of its and other federal agencies’ control and responsibility over these facilities. Section 380.12(c)(2)(ii) of the Regulations sets forth four factors the Commission will use to determine whether there is sufficient federal control and responsibility over a project as a whole to warrant environmental analysis of project-related non-jurisdictional facilities. The factors are:

1. Whether or not the regulated activity comprises “merely a link” in a corridor type project (e.g., a transportation or utility transmission project).
2. Whether there are aspects of the non-jurisdictional facility in the immediate vicinity of the regulated activity which uniquely determine the location and configuration of the regulated activity.
3. The extent to which the entire project will be within the Commission’s jurisdiction.
4. The extent of cumulative federal control and responsibility.

Application of the four-factor test does not support federal environmental review of the upgraded facilities that Georgia Power will install to supply additional electric power to the Elba Liquefaction Project site. Conclusions of the four factor test are as follows:

- With regard to the first factor, the jurisdictional facility is a link in a natural gas transportation project. The modifications to the Terminal will enable SLNG to export up to 2.5 MTPA of LNG per day.
- With regard to the second factor, the proposed non-jurisdictional facilities will provide electricity to the jurisdictional facility proposed in this application. The location and configuration of the jurisdictional facility has not been uniquely influenced by the proposed Georgia Power non-jurisdictional facilities. The proposed Elba Liquefaction Project site in Chatham County is an existing certificated facility, and the proposed modifications to the Terminal are not dictated by the electric transmission lines. Rather, the location and design of the Georgia Power non-jurisdictional facilities have been, and will continue to be, dictated by the location of the jurisdictional Elba Liquefaction Project facilities.
- With regard to the third factor, installation of the electric power lines is regulated by state and local agencies and Georgia Power must comply with applicable state environmental requirements. FERC does not have authority over the permitting, licensing, funding, construction, or operation of the Georgia Power non-jurisdictional facilities. Therefore, this factor also weighs against extending the scope of the FERC’s environmental review to the non-jurisdictional facilities.
- With regard to the fourth factor, federal control is determined by the amount of federal financing, assistance, direction, regulation, or approval inherent in a project. Installation of the electrical facilities will be under state and local jurisdiction. No federal financing or federally controlled lands are involved. Other federal agencies (e.g., USFWS and USACE) are expected to have limited or no involvement in the approval of the non-jurisdictional facilities to be constructed, owned, and operated by Georgia Power. Therefore, cumulative federal control is minimal, and this factor does not warrant extending FERC’s environmental review to the non-jurisdictional facilities.

1.13 REFERENCES

Federal Energy Regulatory Commission (FERC). 2003a. *Upland Erosion Control, Revegetation and Maintenance Plan*.

Federal Energy Regulatory Commission (FERC). 2003b. *Wetland and Waterbody Construction and Mitigation Procedures*.

NERA Economic Consulting (NERA). 2012. *Macroeconomic Impacts of LNG Exports from the United States*. Study contracted by: U.S. Department of Energy, Office of Fossil Energy. Prepared by: NERA Economic Consulting, Washington, D.C., 3 December 2012.

U.S. Coast Guard (USCG). 2007. The Savannah Area Liquefied Natural Gas (LNG) Vessel Management and Emergency Plan. *Supplement to: Waterway Suitability Report: Proposed Expansion of the Southern LNG facility on Elba Island, Georgia*. Prepared by: U.S. Coast Guard, Captain of the Port Savannah, 18 June 2007.

The following Elba Liquefaction Project engineering documents and Industry standards have also been referenced in preparation of this Resource Report:

1. NFPA 59A, Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)
2. ASCE 7-10, Minimum Design Loads for Buildings and Other Structures
3. American Concrete Institute ACI 318 / 318 R - Building Code Requirements for Structural Concrete and Commentary
4. American Concrete Institute ACI 350/350R - Code Requirements for Environmental Engineering Concrete Structures and Commentary
5. American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges
6. American Institute of Steel Construction (AISC) Steel Construction Manual – Allowable Stress Design (ASD) and Load and Resistance Factor Design (LRFD)
7. Terracon 2012 Geotechnical Engineering Report Elba Island LNG Export Project. Savannah, Georgia.

APPENDIX 1.A

REGULATORY CORRESPONDENCE

Public, Volume I

APPENDIX 1.B

USGS TOPOGRAPHIC QUADRANGLE EXCERPTS AND AERIAL MAPPING

Public, Volume I

APPENDIX 1.C

STAKEHOLDER INFORMATION

Privileged, Volume II