

CONCLUSIONS AND RECOMMENDATIONS

SECTION 5

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS OF THE ENVIRONMENTAL ANALYSIS

The conclusions and recommendations presented in this section are those of the FERC environmental staff. While our conclusions and recommendations were developed with input from the COE and Coast Guard as cooperating agencies, each of these agencies may present its own conclusions and recommendations when it has completed its review of the Project.

Review of the information provided by Southern LNG and EEC and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; comments from federal, state, and local agencies; and input from individual members of the public indicates that the proposed Elba III Project is unlikely to result in significant adverse environmental impact on particular resources within the Zones of Concern because it is unlikely that a substantial cargo release would occur. In addition, we conclude that if the Elba III Project were constructed and operated in accordance with applicable laws and regulations, Southern LNG and EEC's proposed mitigation, and the additional mitigation recommendations presented in section 5.5, it would be an environmentally acceptable action. Although many factors were considered in this determination, the principal reasons are:

- the proposed LNG terminal facilities would be an expansion of an existing, fully-operating LNG import terminal with an established deep-water slip and established exclusion zones;
- the proposed additional LNG vessel and associated escort vessels traffic would utilize an existing shipping corridor currently used by LNG vessels, as well as other deep-draft vessels;
- dredge spoil would be disposed of at one of two existing upland CDFs owned and operated by Southern LNG on the northwest end of Elba Island;
- safety features would be incorporated into the design and operation of the Terminal Expansion facilities and LNG vessels;
- the proposed pipeline would parallel existing ROWs for approximately 56 percent of its length;
- EEC would implement its project-specific Plan and Procedures to minimize construction impacts on soils, wetlands, and waterbodies;
- the use of the HDD method for crossing the Broad and Savannah Rivers would avoid disturbances to the beds and banks of these waterbodies;
- the Project would have no effect or would not be likely to adversely affect any federally- or state-listed threatened or endangered species;
- the Coast Guard's preliminary finding that the waterway is suitable for increased LNG marine traffic (with conditions), the security provisions and operational controls that would be imposed by the local pilots, and the Coast Guard to direct movement of LNG ships would maintain the risks of a marine LNG spill, either with or without ignition, at acceptable levels;
- the environmental and engineering inspection and mitigation monitoring program for this Project would ensure compliance with all mitigation measures and conditions of any FERC authorization;

- the navigational controls and marine transit safety and security measures make the likelihood of a spill from LNG vessels extremely remote; and
- all appropriate consultations with the FWS, SHPOs, and ACHP, if required, and any appropriate compliance actions resulting from these consultations, would be completed before construction would be allowed to start in any given area.

In addition, we have developed specific mitigation measures (presented in the individual resource discussions in section 4) to further reduce the environmental impact that would otherwise result from construction of the various Project components. The additional studies or field investigations which we recommend typically result in site-specific mitigation and further reduction of impact; therefore, we are recommending that these mitigation measures be attached as conditions to any authorization issued by the Commission. These mitigation measures are presented in section 5.5. We believe that the recommended mitigation measures would reduce potential environmental impacts from Southern LNG's and EEC's proposed actions to environmentally acceptable levels.

5.2 IMPACT SUMMARY

Geology

Construction and operation of the proposed facilities would have minimal impact on geologic resources in the proposed project area, and the potential for geologic hazards to significantly impact the proposed project is low. To minimize potential impacts associated with soft sediments beneath the proposed LNG tanks, Southern LNG would drive steel or pre-stressed concrete piles deep into the underlying sediment layer to support the tanks and prevent localized ground settlement.

LNG marine traffic would be operating at low speeds and would not create wakes that would significantly increase the potential for shoreline erosion along the transit waterway.

Some areas along the ROW would require the blasting of bedrock to support pipeline placement. To mitigate impacts from this common construction technique, a Blasting Specification Plan has been developed to limit ground vibration and to survey structures, wells, and utilities within 150 feet of the ROW before and after blasting activities.

Soils

Pipeline construction activities such as clearing, grading, trench excavation, and backfilling, as well as the movement of construction equipment along the ROWs may result in adverse impacts on soil resources. Impacts on soils can be effectively minimized through the use of the proposed erosion control and revegetation measures. Southern and EEC would implement the mitigation measures contained in their individual Plans. Implementation of the respective Plans, with approved modifications, would effectively control erosion and sedimentation during construction and ensure restoration and revegetation of all areas disturbed by Project activities. No significant impact on soils would occur along the transit waterway. An unignited or ignited spill along the

vessel transit route would not significantly affect hydric structure, compaction potential, or soil contamination.

Construction and operation of the Terminal Expansion site would permanently disturb approximately 34.26 acres of previously disturbed soils. None of the land within the Terminal Expansion site is currently under active cultivation, and no prime farmland would be permanently converted as a result of the Terminal Expansion Project. Southern LNG would implement the FERC Upland Erosion Control, Revegetation, and Maintenance Plan to establish a baseline for minimizing the potential for erosion as a result of water or wind action and to aid in reestablishing vegetation after construction. In addition, Southern LNG would implement the project-wide Spill Plan that provides guidance for erosion control and stormwater management. Therefore, we do not expect the Terminal Expansion Project to significantly contribute to the cumulative impact on soils.

Construction of the Elba Express Pipeline would temporarily impact 1,067.8 acres of soils considered prime farmland. These areas would be restored to preconstruction conditions; therefore, impacts to farmland and agriculture associated with the project are considered insignificant. Construction would temporarily impact soils with shallow depth to bedrock or coarse fragments, high erosion potential, high compaction potential, and poor revegetation potential. Implementation of EEC's Plan and Procedures would minimize and mitigate for adverse effects on soils associated with these limitations.

Water and Wetland Resources

No groundwater impacts are expected to occur as a result of the Terminal Expansion or increased LNG marine traffic along the transit route. None of the aquifers crossed by the Elba Express Pipeline are designated as sole-source aquifers. The proposed pipeline would cross within 150 feet of 67 private water wells and no public water supply wells. EEC would prohibit refueling and storage of hazardous materials within 150 feet of wells. To ensure that potential impacts on groundwater resources from spills and leaks of hazardous materials are avoided or minimized to the extent possible, EEC and Southern LNG would implement a combined Spill Plan. Further, we are recommending that EEC file a report identifying all water supply wells/systems, any damage caused by construction and how they were repaired. We believe the construction methods proposed by EEC and Southern LNG in coordination with our recommendations would reduce the level of impacts to groundwater to a level less than significant.

Southern LNG's proposed Terminal Expansion would involve construction within the Savannah River. Increased LNG marine and associated escort vessel traffic would minimally increase sedimentation from prop wash and shoreline erosion from wave action. The Elba Express Pipeline would cross 352 waterbodies (161 perennial stream/river crossings, 150 intermittent/ephemeral stream crossings, 11 ponds and 30 manmade ditches). Waterbody crossings would be in accordance with applicable permits and EEC's project-specific Procedures, which would avoid or minimize impacts to a less than significant level. EEC has proposed to cross the Savannah and Broad Rivers by the HDD method. We are recommending that EEC file the results of its geotechnical feasibility investigations for these waterbodies to minimize the likelihood of impacts from "frac-outs."

Southern LNG proposes to use water from the Savannah River for hydrostatic testing of its tanks, ballast, and ship hoteling. Wash water would be acquired from its wells. Fish egg and larvae that could be entrained by ballast and ship hoteling withdrawal would be similar to those currently experienced at the terminal and along the Savannah River from other ocean going vessels. We are recommending that Southern LNG work with NOAA Fisheries to reduce impacts to egg and larvae in the project area associated with water withdrawal for the LNG vessels. We believe implementation of Southern LNG's proposed construction and operation methods in coordination with our recommendation would reduce impacts to a less than significant level.

EEC proposes to use surface waters and municipal sources for hydrostatic testing its pipeline facilities. Southern LNG and EEC would minimize the potential effects of hydrostatic testing on surface water and wetland resources by adhering to specialized construction techniques and measures in their respective Procedures.

The proposed pipeline would cross about 237 acres of wetlands. About 45 percent of the wetlands crossed are forested wetlands. Based on COE wetland quality assessments, about 30 percent of the wetlands crossed by EEC's pipeline would be considered high quality. The installation of pipeline facilities would result in temporary impacts on the scrub-shrub and palustrine emergent wetlands, which are expected to return to preconstruction conditions within a few years. Impacts on forested wetlands would be of longer term due to the longer regeneration time. In addition, impacts would be permanent where forested wetlands are cleared and would be maintained in an herbaceous state over the pipeline centerline for safety reasons to facilitate pipeline inspections. However, the COE would require EEC to compensate (within the same watershed) for any wetlands that would be impacted as a result of the installation of the pipeline and appurtenant facilities. The EPA questioned the mitigation banks EEC proposes to use, and we are recommending that EEC reevaluate these locations.

EEC would limit wetland impacts by reducing the width of the construction ROW, implementing its Procedures, and complying with the conditions of applicable authorizations, such as from the COE under Section 404. EEC would also minimize impacts on forested wetlands by overlapping its temporary construction ROW, including temporary extra workspaces, on adjacent maintained and cleared ROW to the extent practicable. EEC would mitigate impacts on wetlands by implementing its compensatory wetland mitigation plan. No wetlands are expected to be impacted by construction of the Terminal Expansion or increased LNG marine traffic. Compensatory mitigation, use of EEC's Procedures, and complying with applicable authorizations would result in "no net loss" of wetlands and reduce impacts on wetlands to a less than significant level.

In the unlikely event that a spill of LNG were to occur along the vessel transit route, impacts on wetlands within Zone 1 could be significant; however, the likelihood of an LNG spill is extremely remote.

Vegetation and Wildlife

Southern LNG's construction of the Terminal Expansion would impact previously disturbed and maintained grass cover types. No vegetation impacts are anticipated as a result of increased LNG marine vessel transit. Temporary impacts could occur to fisheries within the Terminal Expansion project area during construction from sedimentation, and operation from increased vessel traffic. To reduce the likelihood of the entrainment of eggs and larvae within the project area, we are recommending that Southern LNG not withdraw water for hydrostatic testing its LNG storage tanks from April 1 through July 31. The incremental increase in vessel traffic, along with our recommendation for Southern LNG to consult with NOAA Fisheries to minimize LNG vessel water withdrawals, would limit the impacts to fish eggs and larvae from ballast and cooling water withdrawals. The impacts on vegetation and wildlife along the vessel transit route from an ignited or unignited spill could be significant; however, the likelihood is extremely remote.

Of the vegetation communities that would be crossed by EEC's pipeline facilities, upland vegetation comprises about 90 percent, while wetland vegetation accounts for about 10 percent. The primary upland vegetation cover type that would be crossed by the pipeline facilities (about 941 acres) is upland forest. The next two most prevalent vegetation cover types are open land (about 735 acres) and planted pine (about 562 acres).

To reduce impacts on vegetation within the temporary and permanent ROW and improve revegetation potential, EEC would utilize a portion of previously disturbed, existing pipeline corridor. By using existing ROW during construction, long-term impacts on upland forest, planted pine, and landscape cover types would be lessened and shifted to impacts on open cover types (which would be considered a short-term impact). However, a large portion of the route would not be adjacent to an existing corridor, and would have permanent impacts on the vegetation community. In forested areas, wildlife could shift from those preferring large undisturbed wooded tracts to those preferring edge habitat types. EEC would maintain the ROW in accordance with its project-specific Plan and reseed the disturbed area using NRCS- or landowner-approved seed mixes to minimize the impacts to these areas. We believe these impacts would be less than significant due to the use of existing corridors (to the extent practicable), use of EEC's Plan, and a prevalence of forested communities within the project area.

Special Status Species

Based on consultations with the FWS and NMFS, 31 federally listed or proposed listed species were determined to potentially occur in the general vicinity of the proposed Terminal Expansion, waterway for LNG vessel traffic, and Elba Express Pipeline. Southern LNG and EEC conducted surveys of their project work areas and pipeline routes to identify the presence of listed species in the project areas. On the basis of these field survey reports, analysis of potential effects of the proposed actions, and informal consultations with the FWS and NMFS, we conclude that with the implementation of Southern LNG's and EEC's proposed construction and mitigation plans, and our recommendations (such as continued consultation with NMFS regarding pile driving noise, conducting additional surveys, and implementation of FWS recommended mitigation), the

projects would have no effect on 10 species and are not likely to adversely affect 21 species. The draft EIS (which served as a Biological Assessment) was sent to the FWS and NMFS along with a letter that initiated consultation under Section 7 of the Endangered Species Act. We have not yet received concurrence letters from the FWS and/or NMFS on our determinations. Neither Southern LNG nor EEC would be allowed to begin construction until we complete our consultations with these agencies.

Based on consultations with the GDNR and SCDR, 49 state listed threatened or endangered species potentially occur in the project areas. Of these 49 species, 20 are also federally listed and are addressed in our determinations of effect discussed above. Of the remaining 29 species, no impacts would occur to 10 species. With the implementation of EEC's and Southern LNG's proposed construction and mitigation plans and our recommendations (such as continued consultation with state agencies, additional surveys, restrictions of hydrostatic test water withdrawals, and construction time of year restrictions) 19 species are not expected to be adversely affected. No significant impacts to listed species would be expected as a result of the construction or operation of the proposed projects. Impacts on special status species along the vessel transit route from an ignited or unignited spill could be significant; however, the likelihood of a spill is extremely remote.

Land Use

The total land area affected by construction of all proposed facilities (Terminal Expansion and Elba Express Pipeline projects) would be 3,299.9 acres. Operation of all proposed facilities (Terminal Expansion and Elba Express Pipeline projects) would affect 1,000.7 acres. Elba Island, solely owned by Southern LNG and occupied by the import terminal, would not change from its current industrial land use or affect any residential or recreational resources. The additional facilities proposed as part of the Terminal Expansion would have only minor impacts on visual resources.

Construction and operation of the proposed pipeline would include temporary and permanent impacts to upland forest, planted pine, open space, open water, residential properties, commercial/industrial lands, agriculture lands, and wetlands. Additionally, the pipeline would be located within 50 feet of 18 residences or structures and cross eight planned developments. For those residences within 25 feet of the construction ROW, we are recommending that EEC provide a site-specific plan that describes the construction technique(s) to be used, how EEC would minimize the time that the trench would be open, and provide evidence of landowner concurrence if construction work areas were within 10 feet of a residence. Additionally, we are recommending that prior to construction, EEC file updated documentation of consultations detailing any site-specific construction and mitigation measures or restoration plans requested by developers crossed by or adjacent to its proposed route, and identifying what EEC has agreed to implement. Restoration measures that are subject to easement negotiations could mitigate visual impacts on individual properties.

The pipeline would cross the Di-Lane Plantation and Clark Hill WMAs, and the protected Broad River. We are recommending that EEC provide updated documentation of consultations with the appropriate local officials or managers of the Di-Lane Plantation and Clark Hill WMAs

regarding field surveys, easement acquisitions, and permitting processes, and describe measures EEC agrees to implement. The pipeline would also cross the Beaverdam Creek and Coldwater Creek tributaries that are part of the Richard B. Russell Project, a dam operated by the COE. Because maintenance of the 50-foot-wide permanent ROW would have an unavoidable impact to visual resources along the tributaries, the COE plans to require EEC to replant shallow-rooted shrubs adjacent to the lake to provide a visual buffer.

Under normal operations, LNG vessels transiting the waterway would have no significant impacts on current land uses, recreation, or visual resources. Because of its physical properties, released LNG would quickly disperse in the atmosphere or, if ignited, burn in a pool fire. An unignited LNG release and dispersion would be a short-lived event that would have no impact on land use, residences or visual resources. Impacts from a marine release of LNG with ignition would depend on the location of the incident within the waterway and the scope of the incident. The impacts could be significant, with damage to man-made structures and vegetation ranging from mild to severe with the greatest impacts occurring within Zone 1 and decreasing outward through Zones 2 and 3. However, due to the safety and security measures, the likelihood of an LNG spill is extremely remote.

Socioeconomics

The temporary influx of workers during construction and operation of both the Terminal Expansion and the Elba Express Pipeline would be a nominal addition to the local population and have minimal impact on the availability of housing or the services of local government agencies. The localities where the Project would be built would benefit economically from the employment of local workers, the expenditure of payroll money, the purchase of local materials and supplies, and the addition of monies, both one-time and annual tax revenue. Both Elba Island Road and Islands Expressway are designed to handle the additional traffic from commuting construction workers and material and supply deliveries to the Terminal. Because construction would move sequentially along the pipeline route, any transportation impacts would be temporary on any given roadway, and the transportation system would be minimally impacted by construction.

When fully operational and assuming full utilization, the Terminal Expansion would result in approximately an additional 95 shipments of LNG annually. This would be an average of less than two additional vessels per week. Current (2006) cost of delays to non-LNG vessels from LNG vessels is estimated to be \$75,000-\$150,000 annually. The costs of delays to non-LNG vessels caused by LNG vessels go up to a maximum of \$375,000 in 2011. Costs however, are expected to drop after the harbor deepening project is completed and if the Coast Guard Regulated Navigation Area Rule for unloaded LNG vessels (*i.e.*, vessels carrying less than 5 percent of LNG) is discontinued.

The socioeconomic impacts of an ignited or unignited marine LNG release could be significant, depending on where the incident occurred, the scope of the incident, and the time of year the incident occurred. Vessel traffic would be halted until the affected LNG vessel could be safely removed from the river channel. A substantial unignited LNG release and dispersion would be a short-lived event and may result in temporary closure of the port. The associated cost could be

up to \$50 million and would consist primarily of the cost to transport and repair the LNG vessel. A substantial marine LNG release with ignition resulting in a pool fire may cost more than \$650 million and include severe damage to the shore-side facilities; potential total loss of the LNG vessel and cargo; fatalities; and closure of the port for up to 14 days. Local emergency responders who would respond to such incidents would be financially compensated by Southern LNG. Local populations in Zones 1-3 could be affected depending on location of the incident relative to the population, the scope of the incident, and whether the LNG released ignited or evaporated. This could be a significant impact with injuries ranging from mild to fatal, being most severe in Zone 1 and decreasing outward through Zones 2 and 3. However, because of the implementation of safety and security measures during marine transit, the likelihood of a marine spill from an LNG vessel is extremely remote.

Cultural Resources

Cultural resources surveys for the proposed pipeline in Georgia, to date, have identified 154 archaeological sites, 113 archaeological non-site loci, 29 architectural resources, and 5 cemeteries. Only six of the archaeological sites are recommended as potentially eligible for the NRHP, and avoidance or further evaluation has been recommended. The five cemeteries would be avoided. The Georgia SHPO has concurred with the recommendations for the archaeological resources and cemeteries. Three of the architectural resources have been recommended as eligible for the NRHP, and the SHPO has concurred. In addition, the SHPO has recommended that two additional architectural resources be considered eligible for the NRHP. Finally, approximately 6.8 miles of pipeline and some ancillary areas remain to be surveyed due to denied access. Therefore, we are recommending that EEC defer construction until cultural resources studies and consultations have been completed. If any cultural resources determined eligible for the NRHP cannot be avoided, any impacts would be mitigated to less than significant levels through implementation of a data recovery/treatment plan.

Cultural resources surveys completed for the originally-proposed route in South Carolina (at the Savannah River crossing) identified two cultural resources: one previously recorded site that was not relocated, and one new historic archaeological site that was recommended as not eligible for the NRHP. The South Carolina SHPO concurred. Survey of EEC's newly-proposed route at the Savannah River identified one archaeological site, recommended as not eligible for the NRHP. The SHPO has concurred and we concur also. Therefore, there would be no impacts to historic properties, and compliance with Section 106 of the NHPA for the proposed project in South Carolina is complete.

Southern LNG completed a cultural resources survey for the proposed Terminal Expansion site. No cultural resources were identified and the Georgia SHPO and we concur that no historic properties would be affected. Therefore, there would be no impacts on historic properties, and compliance with Section 106 of the NHPA for the Terminal Expansion portion of the proposed project is complete.

No significant impact on cultural resources is expected along the waterway as a result of LNG and support vessel transit, an unignited release of LNG, or an ignited release of LNG. Potential

significant impact on historic structures in Zones 1 and 2 may occur from an ignited release of LNG. However, the likelihood of a marine LNG spill is extremely remote.

Air Quality

Construction of the Terminal Expansion and compressor station would result in temporary air emissions, but these emissions are not likely to significantly affect long term air quality in the region. During construction, elevated levels of ambient pollutants are likely to occur in the immediate vicinity of the terminal and compressor station. However, the yearly construction-related emissions estimated for the Terminal Expansion would account for only a minimal portion of the county's yearly emissions inventory. Because pipeline construction moves through an area quickly, air emissions associated with EEC's pipeline would be intermittent and short-term.

The existing terminal is a major source as defined by PSD regulations and the Terminal Expansion would constitute a major modification requiring PSD review. Southern LNG prepared an air dispersion modeling analysis as part of its PSD Permit that predicted air emissions impacts associated with the air pollutants exceeding the PSD thresholds, NO_x and CO, would not exceed the NAAQS or significantly impact the existing air quality at federally protected Class I areas within 300 kilometers of the terminal. Potential impacts on air quality due to the operation of the new significant sources would be minimized by adherence to applicable federal and state regulations and the installation of Best Available Control Technology.

Southern LNG also conducted a refined air dispersion analysis for all the stationary sources at the Elba Island LNG Terminal (existing and proposed), marine vessel emissions originating within the moored security zone, and regional sources. The air dispersion modeling analysis was used to predict the off-site concentrations in the vicinity of the project for NO₂, CO, and SO₂ emissions associated with operation of the project for comparison to the NAAQS. The worst-case scenario was modeled which represented the presence of two LNG vessels at the Terminal and the presence of two tug assist vessels for each LNG vessel only during berthing and unberthing. The modeling results show that the cumulative impacts of NO₂, CO, and SO₂ for the 3-hour and annual periods are all below the corresponding NAAQS. The cumulative impacts attributable to the Terminal exceed the NAAQS for the SO₂ 24-hour averaging period. However, given the very conservative approach of the modeling analysis, we believe that the Terminal Expansion alone would contribute to only a fraction of the impacts shown in the modeling analysis. Although the Terminal Expansion would contribute to the degradation of the regional air quality, it would not result in significant impacts to the regional air quality.

Southern LNG also conducted a quantitative assessment of all indirect air emissions associated with LNG marine and other project-related vessels along a distance of 24 nautical miles each way, including the entire waterway from the territorial sea to the vessel berth. A temporary increase in air quality impacts to the populations in Zones 2 and 3 along the waterway, which at times (based upon wind speed, direction, number of support vessels, and fuel mixtures) may be above ambient air quality levels for short periods. However, the emissions affecting any one localized area during vessel transit would be temporary and transient as the LNG vessels and

support vessels make the transit and would occur at distances allowing for considerable dispersion. The long-term impacts associated with the normal operation of the additional LNG vessels along the waterway would not have a significant impact on air quality. In the event of a marine LNG spill, any LNG released would vaporize. If the vapor cloud ignited, combustion emissions would be released to the atmosphere. The types and amounts of emissions from the ignition of an LNG pool from a substantial release would depend on many factors, but the emissions to any one localized area would be temporary and would depend on weather, other conditions at each specific location along the waterway, and the scope of the incident.

Air quality impacts due to the operation of the Elba Express Compressor Station are anticipated to be minor and EEC would comply with all state and local air permitting requirements. We do not believe the operation of the pipeline facilities would have a significant effect on regional air quality.

Noise

Potential noise impacts would include short-term increases in noise during construction, and increases in noise levels associated with operation of the expanded terminal and the new compressor station. Construction activity and associated noise levels would vary depending on the phase of construction in progress at any one time. Considering the distance from the terminal to the NSA, the predicted noise levels during excavation, dredging, pile driving, and construction activities would be well below existing ambient noise levels and the FERC's threshold of an L_{dn} of 55 decibels on the A-weighted scale. Construction of the compressor station would primarily be limited to daylight hours and would not exceed FERC's standard; no mitigation would be required. Operation of the Terminal Expansion and Elba Express Compressor Station would generate noise on a continuous basis. However, the predicted noise levels attributable to operations would not result in significant effects on the nearest NSAs to the terminal or compressor station. We have included recommendations for completion of post-construction noise surveys and implementation of additional mitigation measures, if required, to ensure that actual noise levels resulting from operation of the Terminal Expansion and compressor station would not reach significant levels.

Noise generated by additional LNG marine traffic along the waterway between the terminal and the territorial sea would be similar to noise from other large vessels using the waterway. Given the volume of existing vessel traffic into the Port of Savannah, it is expected that any underwater noise attributable to the additional LNG vessels would not be noticed by aquatic species tolerant of existing shipping. Underwater noise in the Zones of Concern would cause a local and temporary avoidance behavior in fish but would not result in significant impacts on environmental resources. The Project area already is subject to routine noise disturbances associated with numerous sources. Normal operation of additional LNG vessels and escort vessels visiting the expanded terminal would cause an incremental increase in noise impacts primarily along the waterway leading from offshore to the Elba Terminal berths. In the event of a marine LNG spill, any LNG released would vaporize and subsequent ignition of the vapor cloud may occur. Given the known behavior of an LNG spill when ignited, and because no explosion would result, such an ignition event would not be expected to generate sound pressure

waves affecting nearby species or other resources in the Zones of Concern, either above or below the water's surface.

Reliability and Safety

EEC would comply with the DOT's pipeline material and construction standards for natural gas pipelines. Where collocated with Southern's existing pipeline, the typical offset between pipeline centerlines would range between 20 to 25 feet, which greatly reduces the risk of pipeline damage from any repair activities on the adjacent pipelines. After construction, EEC must implement a pipeline integrity management plan to ensure public safety during operation of the proposed pipeline.

We evaluated the safety of both the proposed facilities and the related LNG vessel transit from the territorial sea through the Savannah River navigation channel. As part of our evaluation, we performed a cryogenic design and technical review of the proposed terminal design and safety systems. Several areas of concern were noted with respect to the proposed facility, and we identified specific recommendations to be addressed by Southern LNG: prior to initial site preparation, prior to construction, after final design, prior to commissioning, or prior to commencement of service.

The Coast Guard has longstanding experience in controlling the movements of dangerous cargo vessels and LNG vessels in the Port of Savannah and other ports. Our marine safety analysis considers how vessel security requirements for LNG vessels calling on the terminal might affect other vessel and boat traffic in the Savannah River navigation channel.

The Coast Guard, with input from the Savannah Area Maritime Security Committee and other port stakeholders, has completed a review of Southern LNG's WSA in accordance with the guidance in *Navigation and Vessel Inspection Circular – Guidance on Assessing the Suitability of a Waterway for Liquefied Natural Gas Marine Traffic* (NVIC 05-05). The WSA review focused on the navigation safety and maritime security risks posed by LNG vessel traffic, and the measures needed to responsibly manage these security risks. As a result of this review, the Coast Guard has preliminarily assessed that the Savannah River, based on existing measures and additional conditions, is suitable for the larger LNG vessels and the increase in LNG marine traffic associated with the Terminal Expansion. The Coast Guard also stated that, based on certain conditions for suitability, the Port of Savannah's experience with LNG import and the cooperative relationship between government agencies and port stakeholders, there would be sufficient capability within the port community to responsibly manage the safety and security risks introduced by the Terminal Expansion. This assessment is *preliminary* because the required NEPA analysis has not yet been completed. Upon completion of its NEPA compliance obligations, the Coast Guard will issue an LOR to address the suitability of the waterways for the proposed increase in LNG marine traffic.

Section 311 of the Energy Policy Act of 2005, stipulated that in any order authorizing an LNG terminal the Commission shall require the LNG terminal operator to develop an Emergency Response Plan in consultation with the Coast Guard and state and local agencies. The FERC must approve the Emergency Response Plan prior to any final approval to begin construction. A

Cost-Sharing Plan must also be developed that contains a description of any direct cost reimbursements the applicant agrees to provide to any state and local agencies with responsibility for security and safety at the LNG terminal and near vessels that serve the facility.

Cumulative Impacts

The majority of impacts we have identified for the proposed Elba III Project would be temporary and minor. Their addition to impacts from other past, present, or reasonably foreseeable projects in the region would not result in an overall significant cumulative impact.

5.3 SUMMARY OF ALTERNATIVES CONSIDERED

This EIS addresses alternatives to the proposed actions before the FERC, the Coast Guard, and the COE. In general, the reasonable alternatives before the FERC and the COE are similar. These agencies can either deny the project/permits, postpone the issuance of a Certificate/permit/easement pending further study, or issue a Certificate/permit/easement for the Project as proposed or modified by location or condition.

For the Coast Guard, the reasonable alternatives include issuing a negative LOR (essentially the No Action alternative), postponing issuance of an LOR, or issuing an LOR with conditions (the Coast Guard's preferred alternative). The alternative of issuing an LOR without conditions was determined not reasonable in this case and removed from consideration because it did not meet the Coast Guard's purpose and need for issuance of an LOR -- ensuring adequate safety and security of LNG vessel transit. Also, no reasonable alternatives for shipping routes or other variations were identified because the terminal is an existing import facility.

No Action and Postponed Action Alternatives

The No Action and Postponed Action Alternatives (as well as the negative and postponed LOR), would deny or defer the proposed project. While these alternatives would avoid the environmental impacts identified in this EIS, they would also deny the power plant customers and other markets in Georgia and South Carolina access to additional supplies of natural gas made available by importation of LNG. This in turn could lead to higher natural gas prices, the use of alternative sources of energy, or alternative proposals to develop natural gas import and transmission infrastructure. While conservation and the development of other sources of energy are anticipated to play a part in meeting the future energy needs of the country, they are not expected to significantly reduce the long-term requirement for additional natural gas supplies. Therefore, we conclude that the No Action and Postponed Action Alternatives are not preferable to the proposed action.

Site and Route Alternatives

Other reasonable alternatives we considered include different locations for both the Terminal Expansion and the Elba Express Pipeline. For the Terminal Expansion, we examined using existing LNG import terminals in the region (rather than expanding the existing facility) and alternative terminal sites (locating the LNG storage tanks at a different location, a new import

terminal within the Port of Savannah, and an entirely new site somewhere in the southeastern U.S.). We also studied alternatives that involved receiving the LNG off-shore and off-shore receipt, storage, and regasification.

Development of an entirely new LNG import terminal in the southeastern U.S. would require substantial disturbance of both on-shore and marine resources and a significant length of new, large-diameter pipeline to connect with the customers proposed to be served. We concluded that use of another existing terminal or construction of an alternative site, and the associated pipeline facilities that would be required, would not be environmentally preferable to the proposed action.

We considered a number of alternatives to the proposed Elba Express Pipeline, including the use of existing systems (Southern and South Carolina Pipeline Company), alternative routes for both the Southern Segment (to be constructed along Southern's existing ROW) and the Northern (greenfield) Segment, and route variations that would avoid crossing COE-managed lands. None of the alternatives examined would reduce environmental impact or provide a significant environmental advantage over the proposed route.

At the request of the COE, we considered three route variations that would avoid crossing areas of COE-managed lands. All of the variations examined would increase the mileage of pipeline without providing a significant environmental advantage.

Regarding aboveground facilities, we reviewed EEC's proposed location for the Elba Express Compressor Station and found it environmental acceptable. Therefore, no alternative sites were identified. Further, our review of proposed sites for meter stations, MLVs, and pig launching/receiving facilities raised no issues that warranted evaluation of alternative sites.

5.4 SIGNIFICANT UNAVOIDABLE IMPACTS

Effects on all environmental resources were evaluated to determine whether any significant impacts would remain after application of the mitigation proposed by Southern LNG and EEC. We then considered practical, appropriate, and reasonable measures which would further reduce potential Project-related impacts. As a result, we developed additional mitigation which we are recommending be included as specific conditions to any Order issued by the Commission. Our analysis indicates that with the application of Southern LNG's and EEC's mitigation and implementation of our recommendations below, most impacts from the Elba III Project would be less than significant. Although the likelihood of a cargo spill from an LNG vessel during transit is extremely remote, such an incident could result in significant impacts on wetlands, vegetation, fisheries and wildlife, special status species, land use, people, cultural resources, and air quality.

5.5 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission authorizes the Elba III Project, we recommend that the following measures be included as specific conditions of the Order. We believe these measures would further mitigate the environmental impacts associated with the construction and operation of the proposed Project. In the following list of measures, "file" means file with the Secretary of the FERC.

1. Southern LNG and EEC shall follow the construction procedures and mitigation measures described in the applications, supplemental filings (including responses to staff data requests), and as identified in this EIS, unless modified by the Commission Order. Southern LNG and EEC must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of OEP before using that modification.

2. For pipeline facilities, the Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the Project. This authority shall allow:
 - a. the modification of conditions of the Commission Order; and
 - b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from Project construction and operation.

3. For LNG facilities, the Director of OEP has delegated authority to take all steps necessary to ensure the protection of life, health, property, and the environment during construction and operation of the Project. This authority shall include:
 - a. stop-work authority and authority to cease operation; and
 - b. the design and implementation of any additional measures deemed necessary to assure continued compliance with the intent of the conditions of the Commission Order.

4. The authorized facility locations shall be as shown in this EIS, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction,** Southern LNG and EEC shall file any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Commission Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

EEC's exercise of eminent domain authority granted under the NGA section 7(h) in any condemnation proceedings related to the Commission Order must be consistent with these authorized facilities and locations. EEC's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a ROW for a pipeline to transport a commodity other than natural gas.

5. Southern LNG and EEC shall file detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally-listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area.**

This requirement does not apply to extra workspace allowed by the Southern LNG's and EEC's project-specific Plans and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
 - b. implementation of endangered, threatened, or special concern species mitigation measures;
 - c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
6. **Prior to construction of the respective Project components**, Southern LNG and EEC shall each file initial Implementation Plans for the Terminal Expansion and the Elba Express Pipeline, for review and written approval by the Director of OEP describing how Southern LNG and EEC will implement the mitigation measures required by the Commission Order. Southern LNG and EEC must each file revisions to its respective plan as schedules change. Each plan must identify:
 - a. how these requirements will be incorporated into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
 - b. the number of EIs assigned per spread, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - c. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
 - d. the training and instructions Southern LNG and EEC will give to all personnel involved with construction and restoration (initial and refresher training as the

- Project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
- e. the company personnel (if known) and the specific portion of Southern LNG's and EEC's organizations having responsibility for compliance;
 - f. the procedures (including use of contract penalties) Southern LNG and EEC will follow if noncompliance occurs; and
 - g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - (1) the completion of all required surveys and reports;
 - (2) the mitigation training of onsite personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.
7. EEC shall develop and implement an environmental complaint resolution procedure for at least 3 years following the completion of construction. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Elba Express Pipeline and restoration of the ROW. **Prior to construction of the pipeline**, EEC shall mail the complaint procedures to each landowner whose property would be crossed by the pipeline project.
- a. In its letter to affected landowners, EEC shall:
 - (1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
 - (2) instruct the landowners that if they are not satisfied with the response, they should call EEC's Hotline; the letter should indicate how soon to expect a response; and
 - (3) instruct the landowners that if they are still not satisfied with the response from EEC's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030 or at hotline@ferc.gov.
 - b. In addition, EEC shall include in its weekly status reports a copy of a table that contains the following information for each problem/concern:
 - (1) the identity of the caller and the date of the call;
 - (2) the identification number from the certificated alignment sheet(s) of the affected property and the location by milepost;
 - (3) the description of the problem/concern; and
 - (4) an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.
8. Southern LNG shall employ at least one EI, while EEC shall employ a team of EIs per construction spread. The EIs shall be:

- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Commission Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractors' implementation of the environmental mitigation measures required in the respective contracts (see condition 6 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
9. **Prior to any construction**, Southern LNG and EEC shall file affirmative statements, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.
10. Southern LNG and EEC shall file updated status reports prepared by the head EI on a weekly basis **until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. the current construction status of the Terminal Expansion facilities (Southern LNG) and each pipeline spread (EEC), work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - b. a listing of all problems encountered and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
 - c. a description of corrective actions implemented in response to all instances of noncompliance, and their cost;
 - d. the effectiveness of all corrective actions implemented;
 - e. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Commission Order, and the measures taken to satisfy their concerns; and
 - f. copies of any correspondence received by Southern LNG or EEC from other federal, state, or local permitting agencies concerning instances of noncompliance, and the respective response.
11. EEC must receive written authorization from the Director of OEP **before commencing service from each phase of the Elba Express Pipeline portion of the Project**. Such

authorization will only be granted following a determination that rehabilitation and restoration of the ROW and other areas of project-related disturbance are proceeding satisfactorily.

12. Southern LNG must receive written authorization from the Director of OEP **before commencing service from each phase of the Terminal Expansion portion of the Project**. Such authorization will only be granted following a determination that the facilities have been constructed in accordance with FERC approval and applicable standards, can be expected to operate safely as designed, and the rehabilitation and restoration of areas affected by the project are proceeding satisfactorily.
13. **Within 30 days of placing the facilities in service**, both Southern LNG and EEC shall file an affirmative statement, certified by a senior company official:
 - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
 - b. identifying which of the conditions in the Order Southern LNG and EEC has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
14. **Prior to the commencement of blasting**, EEC shall file a revised Blasting Specification Plan that includes:
 - a. the locations (by MP) where bedrock blasting would be required;
 - b. any applicable state blasting regulations; and
 - c. a pre-blast survey assessment of structures, wells, and utilities within 150 feet of the construction ROW.

In the event property owners identify any damage or change to the properties, or if excessive peak particle velocities have been recorded during the blasting operations, EEC shall complete follow-up surveys of the potentially impacted property.
15. **Prior to construction**, EEC shall file the locations by MP of all springs, seeps, and wells identified within 150 feet of its construction ROW.
16. EEC shall file a report **within 30 days of placing the pipeline facilities in service**, identifying all water supply wells/systems damaged by construction and how they were repaired. The report shall include a discussion of any complaints concerning the well yield or quality and how each problem was resolved.
17. Southern LNG shall not conduct hydrostatic test water withdrawals for LNG storage tank testing in estuarine habitats from **April 1 through July 31**.

18. Southern LNG shall work with LNG vessel owners to identify and implement methods that have the potential to reduce water withdrawal volumes while the vessels are berthed. Southern LNG shall file an annual report for the first three years of operating the Terminal Expansion facilities, detailing the measures that were successfully implemented for each vessel.
19. EEC shall file the results of its HDD geotechnical feasibility investigations for crossing the Broad River and the Savannah River. If its planned HDD crossing is not feasible, then EEC shall develop a site-specific alternative crossing plan and sediment control plan for activities within these waterbodies in consultation with all relevant agencies (*e.g.*, COE, GDNR, FWS, NPS, and NMFS). EEC's plan shall be filed for review and written approval by the Director of OEP **prior to construction at each waterbody location.**
20. EEC shall reevaluate the local wetland mitigation options, in consultation with the COE, in order to determine one or more suitable banks that provide in-kind mitigation in the same watershed as project impacts. EEC shall file its reevaluation for review and approval by the Director of OEP **prior to construction.**
21. Southern LNG shall continue to consult with NMFS to minimize noise impacts associated with pile driving activities and file the results of this consultation **prior to construction.**
22. Where protected species or their habitat exists, and surveys were conducted over one year prior to the start of construction, EEC shall consult with the FWS to assess the need for additional surveys **prior to construction.** In addition, any areas where access has been denied during initial surveys shall also be surveyed for threatened and endangered species **prior to construction.**
23. **Prior to construction,** EEC shall file completed surveys for flatwoods salamander habitat along the pipeline route (*i.e.* MP location of suitable habitat), and provide copies of any correspondence with the FWS including recommended mitigation measures.
24. If Canby's dropwort, pondberry, and/or poolsprite are identified during re-surveys of potentially suitable habitat along the Elba Express Pipeline route, EEC shall contact the FWS to obtain guidance regarding a course of action to be taken to avoid or minimize impacts on these species during construction. **Prior to construction,** EEC shall file the completed survey report that contains the following information:
 - a. name(s) and qualifications of the person(s) conducting the survey;
 - b. method(s) used to conduct the survey;
 - c. date(s) of the survey;
 - d. area surveyed (include the MP surveyed); and
 - e. proposed mitigation that would substantially minimize or avoid the potential impacts.

Copies of all coordination, including any recommended mitigation measures, shall be filed for review and approval by the Director of OEP.

25. Southern LNG and EEC shall **not begin construction** of facilities for the respective projects **until**:
 - a. all outstanding biological surveys have been completed
 - b. the staff completes any necessary consultations with FWS and NMFS; and
 - c. Southern LNG and EEC have received written notification from the Director of OEP that construction and/or use of mitigation (including implementation of conservation measures) may begin.
26. EEC shall file, for the review and written approval of the Director of OEP, the results of consultation with the GDNR regarding avoidance or minimization of impacts on the bluebarred pygmy sunfish **prior to construction**.
27. EEC shall not withdraw water for hydrostatic testing from the Broad River or its tributaries during the period **April 1 to July 31**. However, if EEC believes water withdrawal must occur during this period, EEC shall develop a hydrostatic test water withdrawal plan (containing measures to minimize impacts on the sandbar shiner and robust redhorse) for the Broad River in consultation with the GDNR. Either a statement indicating EEC's commitment to abide by the FWS time-of-year restrictions or copies of correspondence with the FWS and GDNR approving the hydrostatic test water withdrawal plan shall be filed **prior to construction**.
28. EEC shall not construct its crossing of the Ogeechee Creek or its tributaries during the period **June 1 to August 30** unless EEC receives written approval from the Director of OEP. **Prior to construction**, EEC shall file either a statement indicating EEC's commitment to abide by the FWS time-of-year restriction or copies of correspondence with the GDNR approving a summer crossing plan that contains measures to minimize impacts on the Atlantic pigtoe mussel. Alternatively, EEC shall file documentation that the GDNR has determined that the proposed project would not likely affect the Atlantic pigtoe mussel.
29. **Prior to construction**, EEC shall file survey reports for Broad River burrowing crayfish and lean crayfish. If Broad River burrowing crayfish or lean crayfish are found during surveys, then EEC shall **not begin construction in the Broad River watershed until** it files the results of GDNR consultation regarding avoidance or minimization of impacts on these species for review and written approval by the Direction of OEP.
30. For each residence closer than 25 feet to the construction work area, EEC shall file a site-specific plan for the review and written approval of the Director of OEP **prior to construction**. These plans shall include:
 - a. a description of construction techniques to be used (such as reduced pipeline separation, centerline adjustment, use of stovepipe or drag-section techniques,

working over existing pipelines, pipeline crossover, bore, etc.), and include a dimensioned site plan that shows:

- (1) the location of the residence in relation to the new and existing pipelines;
 - (2) the edge of the construction work area;
 - (3) the edge of the new permanent ROW; and
 - (4) other nearby residences, structures, roads, or waterbodies.
- b. a description of how EEC would ensure the trench is not excavated until the pipe is ready for installation and the trench is backfilled immediately after pipe installation; and
- c. evidence of landowner concurrence if the construction work area and fencing would be located within 10 feet of a residence.
31. **Prior to construction**, EEC shall file updated documentation of consultations detailing any site-specific construction and mitigation measures or restoration plans requested by developers crossed by or immediately adjacent to the pipeline route, and identifying what measures EEC has agreed to implement.
32. **Prior to construction**, EEC shall file updated documentation of consultations with the appropriate local officials or managers of the Di-Lane Plantation and Clark Hill WMAs regarding field surveys, easement acquisitions, and permitting processes. The documentation shall identify any agreed-upon mitigation measures or restoration plans developed during the consultations.
33. EEC shall **not begin construction** of the Elba Express Pipeline facilities **until** it files a copy of the Coastal Zone consistency determination issued by the GDNR.
34. EEC shall **defer construction** of the pipeline, compressor station, meter stations, and establishment and use of all staging, storage, and temporary work areas and new or to-be-improved access roads **until**:
- a. EEC files a cultural resources survey report for the denied access areas, and any additional or newly identified areas requiring survey, evaluation report(s), any required avoidance or treatment plan(s), and the Georgia State Historic Preservation Office's comments and any COE comments, as appropriate, on the reports and any plan(s); and
 - b. the Director of OEP reviews all cultural resources survey and evaluation reports and plans and notifies EEC in writing that construction may proceed.

All material filed with the Commission containing **location, character, and ownership** information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: “**CONTAINS PRIVILEGED INFORMATION--DO NOT RELEASE.**”

35. Southern LNG shall file a noise survey for the Terminal Expansion **no later than 60 days** after placing the expansion facilities into service. If the noise attributable to the operation of the terminal exceeds an L_{dn} of 55 dBA at any nearby NSAs, Southern LNG shall file a report on what changes are needed and shall install additional noise controls to meet that level **within 1 year** of the in-service date. Southern LNG shall confirm compliance with this requirement by filing a second noise survey **no later than 60 days** after it installs the additional noise controls.
36. EEC shall file a noise survey for the Elba Express Compressor Station **no later than 60 days** after placing the station into service. If the noise attributable to the operation of the station under full load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, EEC shall file a report on what changes are needed and shall install additional noise controls to meet that level **within 1 year** of the in-service date. EEC shall confirm compliance with this requirement by filing a second noise survey **no later than 60 days** after it installs the additional noise controls.
37. Until the commencement of service, Southern LNG shall **annually** review its WSA relating to LNG marine traffic for the project; update the assessment to reflect changing conditions which may impact the suitability of the waterway for LNG marine traffic; provide the updated assessment to the cognizant COTP/FMSC for review and validations and, if appropriate, further action by the COTP/FMSC relating to LNG marine traffic; and provide a copy to FERC staff..

Recommendations 38-62 apply to the Terminal Expansion and construction details. Information pertaining to these specific recommendations shall be filed for review and approval by the Director of OEP either: prior to initial site preparation; prior to construction of final design; prior to commissioning; or prior to commencement of service as indicated by each specific condition. Specific engineering, vulnerability, or detailed design information meeting the criteria specified in Order No. 683 (Docket No. RM06-24-000), including security information, should be submitted as critical energy infrastructure information (CEII) pursuant to 18 CFR 388.112. See *Critical Energy Infrastructure Information*, Order No. 683, 71 Fed. Reg. 58,273 (October 3, 2006), FERC Stats. & Regs. ¶ 31,228 (2006). Information pertaining to items such as: offsite emergency response; procedures for public notification and evacuation; and construction and operating reporting requirements would be subject to public disclosure. This information should be submitted a minimum of 30 days before approval to proceed is required.

38. Complete plan drawings and a list of the hazard detection equipment shall be filed **prior to initial site preparation**. The list shall include the instrument tag number, type and location, alarm locations, and shutdown functions of the proposed hazard detection equipment. Plan drawings shall clearly show the location of all detection equipment.
39. Southern LNG shall provide a technical review of its proposed facility design that:

- a. identifies all combustion/ventilation air intake equipment and the distances to any possible hydrocarbon release (LNG, flammable refrigerants, flammable liquids and flammable gases); and
- b. demonstrates that these areas are adequately covered by hazard detection devices and indicate how these devices would isolate or shutdown any combustion equipment whose continued operation could add to or sustain an emergency.

Southern LNG shall file this review **prior to initial site preparation.**

40. Complete plan drawings and a list of the fixed and wheeled dry-chemical, fire extinguishing, and other hazard control equipment shall be filed **prior to initial site preparation.** The list shall include the equipment tag number, type, size, equipment covered, and automatic and manual remote signals initiating discharge of the units. Plan drawings shall clearly show the planned location of all fixed and wheeled extinguishers.
41. Facility plans showing the proposed location of, and area covered by, each monitor, hydrant, deluge system, hose, and sprinkler, as well as piping and instrumentation diagrams, of the fire water system shall be filed **prior to initial site preparation.**
42. A copy of the hazard design review and list of recommendations that are to be incorporated in the final facility design **prior to initial site preparation.**
43. Southern LNG shall develop an updated Emergency Response Plan (including evacuation) and coordinate procedures with the Coast Guard; state, county, and local emergency planning groups; fire departments; state and local law enforcement; and appropriate federal agencies. This updated plan shall include at a minimum:
 - a. designated contacts with state and local emergency response agencies;
 - b. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
 - c. procedures for notifying residents and recreational users within areas of potential hazard along the transit route and in the South Channel;
 - d. evacuation routes/methods for residents and other public use areas that are within any transient hazard areas along the route of the LNG marine transit;
 - e. locations of permanent sirens and other warning devices; and
 - f. an “emergency coordinator” on each LNG vessel to activate sirens and other warning devices.

The Emergency Response Plan shall be filed for review and written approval by the Director of OEP **prior to initial site preparation.** Southern LNG shall notify FERC staff of all planning meetings in advance and shall report progress on the development of its Emergency Response Plan at **3-month** intervals.

44. The Emergency Response Plan shall include a Cost-Sharing Plan identifying the mechanisms for funding all project-specific security/emergency management costs that would be imposed on state and local agencies. In addition to the funding of direct transit-related security/emergency management costs, this comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. The Cost-Sharing Plan shall be filed for review and written approval by the Director of OEP **prior to initial site preparation.**
45. The **final design** of the fixed and wheeled dry-chemical, fire extinguishing hazard control equipment shall identify manufacturer and model.
46. The **final design** shall include an updated fire protection evaluation carried out in accordance with the requirements of NFPA 59A 2001, chapter 9.1.2.
47. The **final design** shall include a shutoff valve at the suction and discharge of each high pressure LNG pump.
48. The **final design** of the vaporizers shall include double block isolation on the suction and double block isolation and check valve on the discharge of each vaporizer. One of the valves on the suction and one valve on the discharge shall be automatically actuated.
49. The **final design** of the minimum flow recycle line from the secondary pumps to downstream of the isolation valve to the LNG storage tanks shall specify pipe with the same pressure and temperature rating as the discharge piping for the secondary pumps.
50. The **final design** shall include details of the shut down logic, including cause and effect matrices for alarms and shutdowns.
51. The **final design** shall include emergency shutdown of equipment and systems activated by hazard detection devices for flammable gas, fire, and cryogenic spills, when applicable.
52. The **final design** shall specify that the hazardous area classification of the LNG pump area and vaporizer LNG inlet and outlet piping areas are classified as Class 1 Group D, Division 1.
53. The **final design** shall include details of the air gaps to be installed downstream of all seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system. Each air gap shall vent to a safe location and be equipped with a leak detection device that shall continuously monitor for the presence of a flammable fluid, shall alarm the hazardous condition, and shall shutdown the appropriate systems.
54. The **final design** shall include a hazard and operability review of the completed design. A copy of the review and a list of the recommendations shall be filed.

55. The **final design** of the sendout piping from the vaporizers to the shut-off valve upstream of the meter station shall specify the same pressure rating as the vaporizer discharge piping.
56. All valves including drain, vent, main, and car sealed, or locked valves shall be tagged in the field during construction and **prior to commissioning**.
57. The design details and procedures to record and to prevent the tank fill rate from exceeding the maximum fill rate specified by the tank designer shall be filed **prior to commissioning**.
58. A tabulated list of the proposed hand-held fire extinguishers shall be filed **prior to commissioning**. The information shall include a list with the equipment number, type, size, number, and location. Plan drawings shall include the type, size, and number of all hand-held fire extinguishers.
59. Operation and Maintenance procedures and manuals, as well as safety procedure manuals, shall be filed **prior to commissioning**.
60. **Prior to commissioning**, Southern LNG shall coordinate, as needed, with the Coast Guard to define the responsibilities of Southern LNG's security staff in supplementing other security personnel and in protecting the LNG vessels and terminal.
61. The FERC staff shall be notified of any proposed revisions to the security plan and physical security of the facility **prior to commencement of service**.
62. Progress on construction of the Expansion Project shall be reported in filed **monthly** reports with the Secretary. Details shall include a summary of activities, projected schedule for completion, problems encountered and remedial actions taken. Problems of significant magnitude shall be reported to the FERC **within 24 hours**.

In addition, recommendation numbers 63 through 66 shall apply throughout the life of the facility.

63. The facility shall be subject to regular FERC staff technical reviews and site inspections on at least an **annual basis** or more frequently as circumstances indicate. Prior to each FERC staff technical review and site inspection, Southern LNG shall respond to a specific data request including information relating to possible design and operating conditions that may have been imposed by other agencies or organizations. Up-to-date detailed piping and instrumentation diagrams reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below, including facility events that have taken place since the previously submitted semi-annual report, shall be submitted.

64. **Semi-annual** operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions, abnormal operating experiences, activities (including vessel arrivals, quantity and composition of imported LNG, vaporization quantities, boil-off/flash gas, etc.), plant modifications including future plans and progress thereof. Abnormalities shall include, but not be limited to: unloading/shipping problems, potential hazardous conditions from offsite vessels, storage tank stratification or rollover, geysering, storage tank pressure excursions, cold spots on the storage tanks, storage tank vibrations and/or vibrations in associated cryogenic piping, storage tank settlement, significant equipment or instrumentation malfunctions or failures, non-scheduled maintenance or repair (and reasons therefore), relative movement of storage tank inner vessels, vapor or liquid releases, fires involving natural gas and/or from other sources, negative pressure (vacuum) within a storage tank and higher than predicted boiloff rates. Adverse weather conditions and the effect on the facility also shall be reported. Reports shall be submitted **within 45 days** after each period ending **June 30 and December 31**. In addition to the above items, a section entitled "Significant plant modifications proposed for the next 12 months (dates)" also shall be included in the semi-annual operational reports. Such information would provide the FERC staff with early notice of anticipated future construction/maintenance projects at the LNG facility.
65. In the event the temperature of any region of any secondary containment, becomes less than the minimum specified operating temperature for the material, the Commission shall be notified **within 24 hours** and procedures for corrective action shall be specified.
66. Significant non-scheduled events, including safety-related incidents (i.e., LNG or natural gas releases, fires, explosions, mechanical failures, unusual over pressurization, and major injuries) and security related incidents (i.e., attempts to enter site, suspicious activities) shall be reported to FERC staff. In the event an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made **immediately**, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. In all instances, notification shall be made to Commission staff **within 24 hours**. This notification practice shall be incorporated into the LNG facility's emergency plan. Examples of reportable LNG-related incidents include:
- a. fire;
 - b. explosion;
 - c. estimated property damage of \$50,000 or more;
 - d. death or personal injury necessitating in-patient hospitalization;
 - e. free flow of LNG that results in pooling;
 - f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability, structural integrity, or reliability of an LNG facility that contains, controls, or processes gas or LNG;
 - g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes gas or LNG;
 - h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes gas or LNG to rise above its maximum allowable

- operating pressure (or working pressure for LNG facilities) plus the build-up allowed for operation of pressure limiting or control devices;
- i. a leak in an LNG facility that contains or processes gas or LNG that constitutes an emergency;
 - j. inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank;
 - k. any condition that could lead to a hazard and cause a 20 percent reduction in operating pressure or shutdown of operation of a pipeline or an LNG facility;
 - l. safety-related incidents to LNG vessels occurring at or en route to and from the LNG facility; or
 - m. an event that is significant in the judgment of the operator and/or management even though it did not meet the above criteria or the guidelines set forth in an LNG facility's incident management plan.

In the event of an incident, the Director of OEP has delegated authority to take whatever steps are necessary to ensure operational reliability and to protect human life, health, property or the environment, including authority to direct the LNG facility to cease operations. Following the initial company notification, Commission staff would determine the need for an on-site inspection by Commission staff, and the timing of an initial incident report (normally within 10 days) and follow-up reports.