

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF THE STAFF'S ENVIRONMENTAL ANALYSIS

We have determined that construction and operation of the Ingleside Energy Center LNG Project would result in limited adverse environmental impacts. If the Project is approved by the Commission and is constructed and operated in accordance with recommended mitigation measures, it would be an environmentally acceptable action. Our conclusion is based on information provided by Ingleside San Patricio and data developed from data requests; field investigations by the Commission staff; literature research; alternatives analysis; comments from federal, state, and local agencies; and input from public groups and individual citizens.

As part of our review, we developed measures that we believe would appropriately and reasonably avoid, minimize, or mitigate environmental impacts resulting from construction and operation of the proposed Project. We are, therefore, recommending that our mitigation measures be attached as conditions to any authorization issued by the Commission.

5.1.1 Geology

Construction and operation of the Project would have minimal impact on geological resources. The existing topography at the LNG terminal site would be permanently changed by the excavation and dredging of an unloading slip for the marine terminal. The natural topographic slope and contours would be temporarily altered along much of the pipeline route by grading and trenching activities. However, Ingleside San Patricio would restore topographic contours and drainage conditions to the extent practicable to preconstruction conditions following installation of the pipeline.

Five wells were identified within 150 feet of the construction right-of-way. One operating oil well would be within 100 feet of the pipeline right-of-way; the other four wells are not in operation. Construction of the proposed pipeline would not affect these wells. No geologic hazards would be expected to affect the proposed facilities.

The terminal would lie in an area of low seismic risk. Site-specific analysis conducted for the LNG terminal site revealed that due to very low level of ground motion predicted at the site, earthquake hazards were not considered a controlling factor in facility design. A low risk of seismic activity and faulting effects can be reasonably anticipated for the Project area. Ingleside San Patricio determined that there is minimal risk of soil liquefaction at the LNG tank site and process area and a slightly greater risk at the marine terminal site. To mitigate potential liquefaction risks at its LNG terminal site, Ingleside San Patricio would construct the LNG storage tanks on reinforced concrete slab foundations, the process area on a drilled-and-underreamed pier foundation system, and the marine terminal with deep pile foundations.

5.1.2 Soils and Sediments

Construction of the LNG terminal would permanently affect soils, including 60.7 acres of prime farmland soils; however, the soils at the proposed LNG terminal site are currently in industrial use. Three meter stations associated with the proposed pipeline would remove a total of 0.4 acre of prime farmland soils from agricultural use; however, we have determined this loss would not

be significant. Construction of the pipeline would impact about 234.8 acres of prime farmland soil. Most impacts would be short-term and would not affect the potential use of prime farmland for agricultural purposes. Ingleside San Patricio would implement the FERC's Plan and Procedures during construction and restoration, which would minimize impact on soils. In addition, Ingleside San Patricio consulted with the NRCS and has agreed to segregate and replace the top 20 inches of topsoil as a means of avoiding mixing the topsoil with subsoil with a high sodium content.

About 3,084,700 cubic yards of sediment would be dredged for the creation of the marine terminal. Of this amount, about 1,719,400 cubic yards of material would be removed for the LNG ship berth and 1,365,300 cubic yards of material would be dredged for the maneuvering area. In addition, about 550,300 cubic yards of material would be dredged as part of the relocation of Occidental Chemical's existing loading dock. Ingleside San Patricio's preferred primary disposal area for its dredged material would be on Alcoa's tailing ponds. Based on sediment sampling conducted by Ingleside San Patricio, as well as sediment analysis of the La Quinta Channel area conducted by the COE for its proposed Corpus Christi Channel Improvement Project, potential levels of contaminants in the sediments would not be a concern.

There is a potential for LNG ship movements to cause shoreline erosion, and this impact is dependant on several factors, including the number of ships, ship size, hull shape, speed and draft, propeller action, and proximity to shore. Given the current volume of large ship traffic in the channels, the additional incremental ship traffic resulting from operation of the Ingleside Energy Center LNG Terminal is not expected to substantially increase shoreline erosion. The City of Port Aransas seeks funding over the next five to 10 years to address shoreline erosion issues. Ingleside San Patricio has stated that it would participate in this endeavor through the Port Industries of Corpus Christi, of which it is a member. In addition, we have recommended that prior to construction of the LNG terminal, Ingleside San Patricio file details of this coordination with the City of Port Aransas, or other entities, regarding its planned or potential assistance with ongoing or future shoreline protection efforts.

5.1.3 Water Resources

Groundwater

Construction and operation of the Project would not have a significant impact on groundwater resources in the Project area. There are no public or private water supply wells located within 150 feet of the proposed Project. The greatest potential for impact on groundwater would be from spills, leaks, or other releases of hazardous substances during construction or operation. Ingleside San Patricio has agreed to implement the FERC's Procedures, which includes use of Spill Prevention and Response Procedures that meet state and federal requirements. Ingleside San Patricio's SPCC Plan includes measures that would be taken should a spill occur in onshore areas within the LNG terminal site; however, it does not include procedures for spills that could occur in waters of Corpus Christi Bay during construction of the marine terminal. We have recommended that Ingleside San Patricio develop an SPCC Plan that includes procedures that would be implemented should spills of oil, gas, lubricants, or other hazardous materials occur during construction and operation of the marine terminal.

Surface Water

Construction of the terminal's new marine basin would impact about 40 acres of open water as a result of dredging to create the proposed maneuvering area while 19 acres would be affected by proposed excavation and dredging of the LNG ship berth. Ingleside San Patricio would use hydraulic dredging to remove sediment to create the necessary depth at the maneuvering area and marine terminal basin. Water quality in the area being dredged would be temporarily affected by increased turbidity during dredging, but would return to preconstruction conditions following completion of dredging. Ingleside San Patricio would be required to obtain several permits that would address dredging and dredge material management, including permits from the COE under Section 404 of the CWA and Section 10 of the Rivers and Harbor Act.

Operational impacts of the LNG terminal on marine waters would include periodic maintenance dredging of the maneuvering area and marine terminal basin. Ingleside San Patricio expects maintenance dredging to be required about every 10 to 12 years, with its proposed DMPA at the Alcoa tailing ponds. Comparatively, the COE performs maintenance dredging of La Quinta Channel every three to five years.

Twelve constructed storm drainage ditches and a fire water make-up pond are located on the LNG terminal site. Only one drainage ditch would be temporarily impacted due to construction activities for the LNG storage tanks, but would be restored to pre-construction conditions. The proposed pipeline would cross 12 surface waterbodies. Ingleside San Patricio would cross nine perennial waterbodies using the HDD method and three intermittent waterbodies using the open cut method. To minimize impact on surface waters, Ingleside San Patricio would implement the protective measures in the FERC's Procedures.

5.1.4 Vegetation

Wetland Vegetation

Construction of the Ingleside Energy Center LNG Project would affect a total of about 1.36 acres of coastal marsh, 3.08 acres of tidal flats, and 1.07 acres of submerged aquatic bed during construction of the marine terminal. About 0.03 acre of terrestrial palustrine emergent wetlands would be affected in the uplands crossed by the pipeline. During construction, Ingleside San Patricio would minimize impact on wetlands by implementing measures in the FERC's Procedures.

Ingleside San Patricio consulted with the COE, EPA, FWS, TPWD, TGLO, NOAA Fisheries, and the CBBEP regarding the development of a mitigation plan that would compensate for impacts to aquatic resources directly within and adjacent to the Project area. Based on its consultations, Ingleside San Patricio prepared a draft wetland mitigation plan, which proposes to provide funding for the purchase of two tracts of land totaling 32.83 acres from the Portland Harbors Corporation. Ownership of the land would be maintained by a government entity or conservation organization/land trust with restrictive covenants to assure wetland preservation. We have recommended that Ingleside San Patricio continue its consultation with the COE, EPA, FWS, TPWD, TGLO, NOAA Fisheries, and the CBBEP to develop a final Wetland Mitigation Plan, which would be filed with the Secretary for review and written approval by the Director of OEP prior to construction of the LNG terminal.

In addition to direct impact on seagrass beds within the proposed dredging footprint, adjacent seagrass beds could potentially be affected by turbidity and sedimentation created by dredging activity. Ingleside San Patricio has agreed to use turbidity curtains to protect the adjacent seagrass beds during the dredging and loading dock relocation activities. In addition, we have recommended that Ingleside San Patricio conduct post-construction surveys of seagrass beds adjacent to the areas that would be dredged and file a report that compares the pre- and post-construction seagrass surveys. If secondary impacts to these areas are observed, we have recommended that Ingleside San Patricio consult with resource and regulatory agencies to develop additional mitigation measures as necessary.

Terrestrial Vegetation

Ingleside San Patricio's proposed 74-acre LNG terminal site contains disturbed and undeveloped industrial areas that are covered with maintained lawn and crushed gravel. Scrub/shrub uplands and grasslands occur along the edges of the disturbed industrial areas. Construction of the proposed pipeline would require about 375.7 acres of land, of which 256.6 acres would be agricultural land and 113.9 acres would be open land. The open land is covered by grasslands and scrub/shrub vegetation. After installation of the pipeline, crops could still be grown over the right-of-way. The permanent pipeline easement in open land would be kept in an herbaceous state.

The TPWD noted that some mature oak trees may be present among other woody vegetation along the pipeline route between MP 21.0 and 24.0, and recommended that Ingleside San Patricio avoid removal of large trees greater than 12 inches in diameter at breast height. We have included this recommendation, stating that Ingleside San Patricio should attempt to avoid the removal of mature trees along the pipeline right-of-way, and if such trees must be removed, to prepare a mitigation plan in consultation with the TPWD prior to construction.

Ingleside San Patricio would follow our Plan and apply our mitigation measures for minimizing erosion and enhancing revegetation before, during, and after the construction of the Project. Therefore, we conclude that impacts on terrestrial vegetation would not be significant.

5.1.5 Wildlife and Aquatic Resources

Wildlife

Impacts on wildlife resulting from construction and operation of the Project would include the temporary alteration and permanent loss of habitat. Wildlife habitats in the Project area include open bay/benthic habitat, seagrass beds, coastal marsh, tidal flat habitats, scrub/shrub vegetation and agricultural land. Impacts on aquatic organisms would arise primarily from dredging, berth and dock construction, and ballast water intake by LNG ships, which could result in habitat removal and conversion; loss of organisms by direct removal, entrainment, or burial; and loss related to turbidity or noise impacts. We believe that these effects would be localized, short-term, and minor.

The primary impact on wildlife associated with the pipeline would be clearing of shrubland habitat and temporary disturbance during construction. Some shrubland habitat would be permanently converted to low shrub or grassland habitat as a result of vegetation maintenance on

the pipeline right-of-way. During operation of the pipeline, relatively little vegetation maintenance would be required due to the large percentage of agricultural land crossed. Ingleside San Patricio would avoid vegetation maintenance during the peak nesting period between March 1 and August 31 of any year. If vegetation clearing must be conducted during this time, Ingleside San Patricio would survey for all migratory bird nests prior to commencing work. In addition, we have recommended that if an active migratory bird nest is found along the construction right-of-way, Ingleside San Patricio should consult with the FWS to identify the most appropriate measure that should be taken to avoid or minimize impacts.

We do not expect wildlife to be significantly impacted by the Project. Once construction is completed and work areas restored, wildlife could re-occupy open available habitat. The majority of the LNG terminal site is currently industrial land with limited usefulness as wildlife habitat.

Aquatic Wildlife

NOAA Fisheries identified EFH for three shellfish species (juveniles and subadults of white shrimp, brown shrimp, and pink shrimp); and two species of finfish (postlarval, juvenile, and adult red drum, and adult and subadult Spanish mackerel). An EFH assessment is included in appendix B of this final EIS. As a cooperating agency NOAA Fisheries reviewed the draft of this EIS and EFH Assessment and provided EFH conservation recommendations to offset adverse project impacts to EFH. In response to these recommendations, we have recommended that the Final Wetland Mitigation Plan be filed with the Secretary for review and written approval prior to construction of the LNG terminal. It will be implemented in association with the COE's Section 404/10 individual permitting process. With this mitigation, we do not believe construction or operation impacts on EFH would have a substantial adverse effect on managed fisheries in the area.

5.1.6 Threatened, Endangered, and Other Special Status Species

The FWS and NOAA Fisheries have identified a total of 22 federally listed endangered or threatened species that could potentially occur in the Project area. We have made several recommendations in order to protect these endangered or threatened species. We have recommended that Ingleside San Patricio provide training prior to site preparation at the LNG terminal on measures to avoid potential impacts to the West Indian Manatee. To protect piping plovers during construction, we have recommended that Ingleside San Patricio have a biologist on-site in tidal flats from August through April to assist employees in avoiding any impacts to piping plovers. In response to NOAA Fisheries comments, we have recommended that Ingleside San Patricio prepare a plan consistent with NOAA Fisheries recommendations to minimize potential impacts on sea turtles and marine mammals from driving piles during construction of the marine terminal. Lastly, we have recommended that Ingleside San Patricio not begin construction until all threatened and endangered species surveys are complete and filed with the FWS and the Commission, and FERC staff completes all consultations with FWS and NOAA Fisheries.

Based on our analysis of habitat that would be affected by the Project and our recommendations, we have determined that the Project would have no effect or would not likely adversely affect these species.

5.1.7 Land Use, Recreation, and Visual Resources

Most of the land affected by the Project is industrial and open land at the LNG terminal and agricultural land along the pipeline. A total of about 114 acres of land and water would be required for the construction and operation of the LNG terminal, including about 40 acres of open water and 74 acres of industrial/open land. Operation of the pipeline would affect about 189.7 acres of land, of which 159.7 acres would be affected by the permanent pipeline right-of-way, and 1.0 acre would be permanently converted to industrial use for operation of the aboveground facilities associated with the pipeline.

The nearest existing residential areas to the proposed LNG terminal are about 1.2 miles east of the terminal within the City of Ingleside and 2.0 miles southeast within the community of Ingleside-on-the-Bay. No residences are located within 50 feet of the proposed pipeline workspace. No public lands or special interest areas would be affected by the Project.

The most prominent visual features of the proposed LNG terminal would be two LNG storage tanks, each 178 feet above the current grade and 253 feet in diameter. Ingleside San Patricio prepared photo simulations of views of the proposed LNG storage tanks from three observation points. While the LNG storage tanks would be visible, they would not dominate the landscape, and the LNG tanks would be consistent in size and height with the existing structures of industrial facilities along the shoreline.

In Texas, the TRRC is responsible for reviewing federal agency actions and activities to ensure that they are consistent with the Texas CZMP. In order to obtain a consistency determination in Texas for a federal action (*e.g.*, a FERC project), applicants must submit a section 404 permit application to the COE, along with a consistency statement. The COE will forward the Public Notice to the Coastal Coordination Council and the TRRC. The Coastal Coordination Council will post the Public Notice on its website (www.glo.state.tx.us/coastal/fedactions.html) and in the Texas Register. The Ingleside Energy Center LNG Project would be above the TRRC's thresholds for referral to the Coastal Coordination Council (31 Texas Administrative Code §506.30). The TRRC will be solely responsible for determining the Project's consistency with the goals and policies of the CZMP unless the determination is referred to the Coastal Coordination Council for consideration. This determination will accompany the TRRC's section 401 water quality certification. Ingleside San Patricio submitted a consistency determination with its COE permit application. We have recommended that Ingleside San Patricio not be allowed to begin construction until it has received documentation confirming that the Project is consistent with the Texas CZMP.

5.1.8 Socioeconomics

The Ingleside Energy Center LNG Project would be constructed over a 37-month period. During construction of the LNG terminal, Ingleside San Patricio would employ an average of about 350 workers. A maximum of approximately 550 workers would be employed during the peak construction period, when the LNG terminal and pipeline are both under construction. Ingleside San Patricio expects to utilize predominately local workers who reside within 100 miles of the Project. Additional construction personnel hired from outside the Project area would include highly skilled mechanical, electrical, and instrumentation and control tradesmen who would temporarily relocate to the Project area.

Ingleside San Patricio would employ 34 full-time workers to maintain and operate the LNG terminal facilities.

5.1.9 Transportation and Traffic

Construction workers commuting to the Project area are expected to add an average of approximately 700 vehicle trips per day. At the peak of construction, a maximum of 1,100 construction worker vehicle trips are expected. Existing roads would provide land access to the LNG terminal site via State Routes 35 and 361 and Edwards Road (a private road currently used as access to the Occidental Chemical manufacturing complex). Access to the pipeline and associated aboveground facilities would be via existing private and public roadways. Ingleside San Patricio consulted with the TDOT and determined that a Project-specific Construction Transportation Management Plan would be required for its LNG terminal. This plan would be used by both the TDOT and other local entities responsible for transportation issues.

During construction of the LNG terminal, materials required for construction of the LNG terminal may be delivered to the site by barge about two to three times per week. While this would cause minimal water transportation impacts, operation of the terminal would result in regular LNG ship traffic. During operation, the LNG terminal would receive up to 140 LNG ships per year, or between two and three ships per week through the Corpus Christi and La Quinta Ship Channels.

5.1.10 Cultural Resources

Ingleside San Patricio had consultants conduct intensive pedestrian archaeological surveys of 21.6 miles along the proposed pipeline route and 85 acres onshore at the proposed LNG terminal. In addition, an underwater remote sensing marine survey was done covering about 23 acres in the La Quinta Channel, including the area proposed for the relocation of Occidental Chemical's existing loading dock. No cultural resources were identified during the surveys. The Texas SHPO accepted the survey reports, and indicated that no historic properties would be affected in the areas covered by the inventories. Since approximately 4.8 miles of proposed pipeline route have not been surveyed, we recommended that Ingleside San Patricio defer construction of its pipeline until the necessary reports are filed, the SHPO comments on reports are filed, the ACHP is given an opportunity to comment if historic properties would be affected, and the Director of OEP provides approval.

5.1.11 Air Quality and Noise

Air emissions resulting from construction of the proposed Ingleside Energy Center LNG Project would be short-term and would not significantly affect air quality in the region. Ingleside San Patricio would use emission and dust control measures during construction of the LNG terminal and pipeline. Since Nueces and San Patricio Counties are both classified as attainment areas for all criteria pollutants, the proposed Project area is not subject to NNSR permitting. Emissions from the proposed Ingleside Energy Center LNG Project are not expected to exceed 100 tpy; however, emissions from the LNG terminal have been factored into the Title V permit for the Occidental Chemical manufacturing complex. Ingleside San Patricio coordinated with Occidental Chemical and submitted a revision to its existing Title V permit in October 2004. Ingleside San Patricio received its TCEQ Air Quality Permit on April 15, 2005.

To ensure that there would be no significant impact to noise quality at the nearest NSAs, we have recommended that Ingleside San Patricio should make all reasonable efforts to assure its predicted noise levels from the LNG terminal are not exceeded at the NSAs. During construction of the San Patricio pipeline, neighbors in the vicinity of the construction right-of-way would hear construction noise. Traffic and farm machinery are the primary sources of ambient noise. Operational noise impacts would be limited to the meter stations' vicinity; however, calculated noise levels would not exceed an L_{dn} of 55 dBA. No mitigation is proposed at any of the meter station sites since the predicted levels are below an L_{dn} of 55 dBA.

5.1.12 Reliability and Safety

We evaluated the safety of both the proposed LNG import terminal facility and the related LNG vessel transit through the Corpus Christi and La Quinta Channels. With respect to the onshore facility, we completed a cryogenic design and technical review of the proposed terminal design and safety systems, and have identified specific areas of concern and included recommendations to address these concerns. We also calculated thermal radiation and flammable vapor hazard distances for an accident or an attack on an LNG vessel. Based on the extensive operational experience of LNG shipping, the structural design of an LNG vessel, and the operational controls imposed by the Coast Guard and the local pilots, the likelihood of a cargo containment failure and subsequent LNG spill from a vessel casualty – collision, grounding, or allision – is highly unlikely. For similar reasons, an accident involving the onshore LNG import terminal is unlikely to affect the public. As a result, the risk to the public from accidental causes shall be considered negligible.

We have evaluated potential ship traffic congestion impacts from the additional LNG ship traffic. During operation, the LNG terminal would receive up to 140 LNG ships per year, resulting in a 3.5 percent increase in large vessel traffic. The additional traffic of a number of other proposed facilities (the La Quinta Container Terminal, the Vista del Sol LNG Terminal, and the Cheniere Corpus Christi LNG Terminal) could increase large vessel traffic levels from the existing average level of 3.5 vessels per day to an average of six vessels per day.

On November 1, 2004, Ingleside San Patricio submitted its Letter of Intent to construct the LNG facility to the Coast Guard's Marine Safety Office in Corpus Christi, Texas. On February 1, 2005, the Coast Guard issued the proposed facility a Letter of Recommendation stating that the Corpus Christi and La Quinta Ship Channels are suitable for LNG transport. This letter in itself does not represent final authority to commence LNG marine transport operations. Issues related to the public impact of safety and security or exclusion zones would be addressed in the *LNG Vessel Management and Emergency Plan* to be developed by Ingleside San Patricio and approved by the Coast Guard.

5.1.13 Alternatives

We considered the alternatives of no action or postponed action. While the no action or postponed action alternatives would eliminate or postpone the environmental impacts identified in this EIS, the objectives of the proposed Project would not be met.

Our analysis of system alternatives included an evaluation of the use of existing LNG import and storage systems. None of the existing facilities has the capacity or space to add the capacity

proposed in this Project. In addition, we also analyzed various recently approved and proposed projects, the majority of which would either not meet the need of the Project, or would result in significant environmental impacts from expanding these facilities to meet the need. We considered combining the proposed Ingleside Energy Center terminal facilities with the other proposed locations for LNG terminals along the northeastern shoreline of Corpus Christi Bay, at either Cheniere Corpus Christi or Vista del Sol's LNG terminal site. Moving the location of the Ingleside Energy Center's proposed LNG facilities to either of these sites would defeat Ingleside San Patricio's stated purpose of combining its facilities with the Occidental Chemical manufacturing complex, to offset each others respective heating and cooling needs. The proximity of the Occidental Chemical manufacturing complex would allow for Ingleside San Patricio's use of heated wastewater from Occidental Chemical's and/or ICLP cooling water system as a source of vaporization heat for the LNG. Water that would be cooled during the vaporization process would be returned to these facilities for reuse. This process would conserve or avoid the release of about 300 tons of regulated air emissions per year and conserve about two million gallons of water per day. In addition, Ingleside San Patricio would use land owned by Occidental Chemical which would provide a substantial economic and environmental benefit to its proposed location.

We also looked at the construction of an offshore terminal to meet the objectives of the proposed Ingleside Energy Center LNG Project. Our review indicates that construction of an offshore alternative would involve a longer pipeline, the construction of a graving dock that would impact the shoreline, and a permanent onshore facility for terminal support activities. Therefore, we do not consider construction of an offshore facility a reasonable alternative to the proposed Project. We also looked at alternative port sites, none of which would provide an environmental advantage over the proposed site.

Our alternatives analysis included the evaluation of three pipeline route alternatives and four route variations. None of these route alternatives or variations would provide an environmental advantage over the proposed pipeline route.

5.2 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission issues their authorization for the proposed Project, we recommend that the Commission's Order Granting a Certificate of Public Convenience and Necessity (Order) include measures 1 through 72 of the following section. We believe these measures would further mitigate the environmental impacts associated with the construction and operation of the proposed Project.

1. Ingleside San Patricio shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff data requests), and as identified in this Environmental Impact Statement (EIS), unless modified by this Order. Ingleside San Patricio must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (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

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- d. receive approval in writing from the Director of the Office of Energy Projects (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's 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 this Order.
4. **Prior to any construction**, Ingleside San Patricio shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors, and contractor personnel will be informed of the environmental inspector'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.
5. The authorized facility locations shall be as shown in this EIS, as supplemented by filed alignment sheets, and shall include all of the staff's recommended facility locations. **As soon as they are available, and before the start of construction**, Ingleside San Patricio shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by this Order. All requests for modifications of environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.
6. Ingleside San Patricio shall file with the Secretary 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, and 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 *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), 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.

7. **At least 60 days before the start or construction**, Ingleside San Patricio shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Ingleside San Patricio will implement the mitigation measures required by this Order. Ingleside San Patricio must file revisions to the plan as schedules change. The plan shall identify:

- a. how Ingleside San Patricio will incorporate these requirements 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 on-site construction and inspection personnel;
- b. the number of environmental inspectors assigned per spread, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
- c. company personnel, including environmental inspectors and contractors, who will receive copies of the appropriate material;
- d. the training and instructions Ingleside San Patricio 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 Ingleside San Patricio's organization having responsibility for compliance;
- f. the procedures (including use of contract penalties) Ingleside San Patricio 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 on-site personnel;
 - (3) the start of construction; and
 - (4) the start and completion of restoration.

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8. Ingleside San Patricio shall develop and implement an environmental complaint resolution procedure. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. **Prior to construction of the pipeline**, Ingleside San Patricio shall mail the complaint procedures to each landowner whose property would be crossed by the Project.
 - a. In its letter to affected landowners, Ingleside San Patricio shall:
 - (1) provide a local contact that the landowners shall call first with their concerns; the letter shall indicate how soon a landowner shall expect a response;
 - (2) instruct the landowners that, if they are not satisfied with the response, they shall call Ingleside San Patricio's Hotline; the letter shall indicate how soon to expect a response; and
 - (3) instruct the landowners that, if they are still not satisfied with the response from Ingleside San Patricio's Hotline, they shall contact the Commission's Enforcement Hotline at (888) 889-8030.
 - b. In addition, Ingleside San Patricio shall include in its weekly status report a copy of a table that contains the following information for each problem/concern:
 - (1) the date of the call;
 - (2) the identification number from the certificated alignment sheets of the affected property;
 - (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.
 9. Ingleside San Patricio shall employ a team of environmental inspectors. The environmental inspectors shall be:
 - a. responsible for monitoring and ensuring compliance with all mitigation measures required by this Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 7 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of this 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 this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
 10. San Patricio Pipeline shall file updated status reports prepared by the environmental inspectors with the Secretary on a weekly basis **until all construction and restoration**

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- 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 project, 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 environmental inspectors 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. 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 this Order, and the measures taken to satisfy their concerns; and
 - f. copies of any correspondence received by Ingleside San Patricio from other federal, state or local permitting agencies concerning instances of noncompliance, and Ingleside San Patricio's response.
11. Ingleside San Patricio must receive written authorization from the Director of OEP **before commencing service of the Project**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the project are proceeding satisfactorily.
 12. **Within 30 days of placing the certificated facilities in service**, Ingleside San Patricio shall file an affirmative statement with the Secretary, 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 certificate conditions Ingleside San Patricio 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.
 13. Ingleside San Patricio shall include in its Dredge Disposal Plan the final placement location, the routes of dredge slurry pipes and access roads, and the location/design of outfall structures. This plan shall be filed with the Secretary **prior to the start of dredging operations**. *EIS section 2.4.1.2*
 14. Ingleside San Patricio shall file with the Secretary details of its coordination with the City of Port Aransas, and other local, state, or federal government entities, regarding its planned or potential assistance with ongoing or future shoreline protection efforts **prior to construction of the LNG terminal**. *EIS section 4.2.3*
 15. Ingleside San Patricio shall develop an Offshore Spill Prevention, Control and Countermeasures (SPCC) Plan to include procedures that would be implemented should
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spills of oil, gas, lubricants, or other hazardous materials occur during construction and operation of the marine terminal. In addition to addressing emergency spill response and clean-up procedures, this plan shall include a description of general spill prevention measures such as material handling practices, personnel training, and inspection. The offshore SPCC Plan shall be filed with the Secretary for review and approval by the Director of OEP **prior to the start of site preparation at the LNG terminal.** *EIS section 4.3.1*

16. Ingleside San Patricio shall conduct post-construction surveys of seagrass beds adjacent to the areas that would be dredged and file a report that compares the results of the pre- and post-construction seagrass surveys with the Secretary **within 90 days** of completing dredging and dredge material placement. If secondary impacts to these areas are observed, Ingleside San Patricio shall consult with resource and regulatory agencies to develop additional mitigation measures as necessary. *EIS section 4.4.1*
17. Ingleside San Patricio shall continue its consultation with the U.S. Army Corps of Engineers (COE), U.S. Environmental Protection Agency (EPA), U.S. Department of the Interior, Fish and Wildlife Service (FWS), Texas Parks and Wildlife Department (TPWD), the Texas General Land Office (TGLO), National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries), and the Coastal Bends Bays and Estuaries Program (CBBEP) to further develop its Wetland Mitigation Plan. Prior to construction of the LNG terminal, Ingleside San Patricio shall file its final plan with the Secretary for review and written approval by the Director of OEP. *EIS section 4.4.1*
18. Ingleside San Patricio shall attempt to avoid the removal of mature trees along the pipeline right-of-way with a diameter at breast height greater than 12 inches. If such trees must be removed, Ingleside San Patricio shall prepare a mitigation plan, in consultation with the TPWD, and file the plan with the Secretary **prior to construction of the pipeline.** *EIS section 4.4.2*
19. Ingleside San Patricio shall consult with the TPWD and the Natural Resources Conservation Service (NRCS) to develop a seed mix that includes native grass species. Ingleside shall file the final seed mix specifications with the Secretary, **prior to construction of the pipeline.** *EIS section 4.4.2*
20. If an active migratory bird nest is found along the construction right-of-way, Ingleside San Patricio shall consult with the FWS to identify the most appropriate measure that shall be taken to avoid or minimize impacts. *EIS section 4.5.3.6*
21. Ingleside San Patricio shall provide training for all personnel involved in construction and operation of the LNG terminal on measures to avoid potential impacts to the West Indian manatee, **prior to site preparation at the LNG terminal.** This training shall include:
 - a. information advising that manatees may be found in La Quinta Channel;
 - b. materials, such as a poster, to assist in identifying the mammal;
 - c. instructions not to feed or water the animal; and

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- d. directions to call the Corpus Christi Ecological Services Field Office of the FWS in the event that a manatee is sighted in or near the Project area. *EIS section 4.6.1.1*
22. During the wintering months (August through April) for piping plovers, Ingleside San Patricio shall have a biologist on-site during construction in tidal flats to assist employees in avoiding any impacts to piping plovers during construction of the LNG terminal. *EIS section 4.6.1.2*
23. Any activities at the mitigation site shall be conducted outside of the piping plover wintering season (August through April) and during the summer months (May through July) when piping plovers are not present.
24. Ingleside San Patricio shall prepare a plan, consistent with NOAA Fisheries recommendations, to minimize potential impacts on sea turtles and marine mammals from driving piles during construction of the marine terminal. The plan shall include measures to reduce sound transmission into the water (e.g., air bubble curtains, limitations on the type of hammer used, reductions in force applied to the pile) or a monitoring protocol to ensure listed species are not present in the zone of potential affect. The plan shall be approved by NOAA Fisheries, and filed with the Secretary for review and written approval by the Director of OEP **prior to construction of the LNG terminal**. *EIS section 4.6.1.3*
25. Ingleside San Patricio shall not begin construction of the pipeline or LNG terminal until:
- a. Ingleside San Patricio conducts a threatened and endangered species survey along portions of the construction right-of-way where access has been denied and files an amended field survey with the FWS and the Secretary;
 - b. the staff completes any necessary formal consultation with FWS and NOAA Fisheries, if required; and
 - c. Ingleside San Patricio has received written notification from the Director of OEP that construction and/or implementation of conservation measures may begin. *EIS section 4.6.3*
26. If facilities are not constructed **within one year** from the date of issuance of the authorization from the Director of OEP that construction may begin, Ingleside San Patricio shall consult with the appropriate offices of FWS and NOAA Fisheries to verify that previous consultations and determinations of effect are still current. *EIS section 4.6.3*
27. Ingleside San Patricio shall not begin construction of any component of its LNG terminal **until** it files with the Secretary a copy of the consistency determination issued by the Railroad Commission of Texas. *EIS section 4.7.5*
28. Ingleside San Patricio shall **defer construction** and use of its proposed pipeline facilities, including related ancillary areas for staging, storage, and temporary work areas, and new or to-be-improved access roads, **until**:
- a. Ingleside San Patricio files with the Secretary all additional required inventory and evaluation reports, and any necessary treatment plans;

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- b. Ingleside San Patricio files the State Historic Preservation Office (SHPO) comments on all cultural resources investigation reports and plans;
 - c. the Advisory Council on Historic Preservation (ACHP) has been given an opportunity to comment if any historic properties would be adversely effected by the Project; and
 - d. the Director of OEP reviews and approves all cultural resources reports and plans, and notifies Ingleside San Patricio in writing that it may proceed with treatment or construction.

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.” *EIS section 4.10.4*

29. Ingleside San Patricio shall make all reasonable efforts to assure its predicted noise levels from the LNG terminal are not exceeded at the NSAs and file noise surveys showing this with the Secretary **no later than 60 days** after placing the LNG terminal in service. However, if the noise attributable to the operation of the LNG terminal exceeds 55 dBA L_{dn} at an NSA, Ingleside San Patricio shall file a report on what changes are needed and shall install additional noise controls to meet the level **within one year** of the in-service date. Ingleside San Patricio shall confirm compliance with these requirements by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls. *EIS section 4.11.2.1*
30. Ingleside San Patricio shall evaluate the need for additional dredging, and the quantity of dredging that would be required, to accommodate the maneuvering of LNG vessels up to 254,000 m³ capacity through the Corpus Christi and La Quinta Channels. This study shall be done in consultation with the COE, Coast Guard, and the Aransas Corpus Christi Pilots Association. Ingleside San Patricio shall file the results of this evaluation with the Secretary for the review and approval of the Director of OEP **prior to the use of LNG ships over 140,000 m³ in capacity**. *EIS section 4.12.5.1*
31. Ingleside San Patricio shall submit a waterway suitability assessment to the cognizant Captain of the Port/Federal Maritime Security Coordinator for review and validation and provide a copy to the FERC staff. *EIS section 4.12.5.2*
32. Ingleside San Patricio shall annually review its waterway suitability assessment for the project; update the assessment to reflect changing conditions; provide the updated assessment to the cognizant Captain of the Port/Federal Maritime Security Coordinator for review and validation; and provide a copy to the FERC staff. *EIS section 4.12.5.2*

The following measures shall apply to the LNG terminal design and construction details. Information pertaining to these specific recommendations (recommendations 33 through 72) shall be filed with the Secretary 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 recommendation. This information shall be submitted a minimum of 30 days before approval to proceed is required.

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33. A complete plan and list of the hazard detection equipment shall be filed **prior to initial site preparation**. The information shall include a list with 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. *EIS section 4.12.2*
34. Ingleside San Patricio shall provide a technical review of its facility design that:
- Identifies all combustion/ventilation air intake equipment and the distance(s) to any possible hydrocarbon release (LNG, flammable refrigerants, flammable liquids, and flammable gases).
 - Demonstrates that these areas would be 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.
- Ingleside San Patricio shall file this review **prior to initial site preparation**. *EIS section 4.12.2*
35. A complete plan and list of the fixed and wheeled dry-chemical, fire extinguishing, high expansion foam, hazard control equipment shall be filed **prior to initial site preparation**. The information shall include a list with 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. *EIS section 4.12.2*
36. The design of the Bottle-Up Vessel and system shall be re-evaluated for process design, pressure and volume containment under all conditions and the proposed design basis and design filed **prior to initial site preparation**. *EIS section 4.12.2*
37. Ingleside San Patricio shall either provide revised vapor dispersion calculations based on the main LNG impoundment configuration with both concrete walls and an insulating perlite concrete floor or specify a different impoundment configuration. This information shall be filed with the Secretary 30 days **prior to initial site preparation** for review and approval by the Director of OEP. Alternatively, Ingleside San Patricio may provide evidence of its ability to exercise legal control of the activities that occur with the portions of the vapor dispersion exclusion zone shown to fall outside of the site property line. *EIS section 4.12.4*
38. Ingleside San Patricio shall examine provisions to retain any vapor produced along the transfer line trenches and other areas serving to direct LNG spills to associated impoundments. Measures to be considered may include, but are not limited to: vapor fencing; intermediate sump locations; or trench surface area reduction. Ingleside San Patricio shall file final drawings and specifications for these measures with the Secretary 30 days **prior to initial site preparation** for review and approval by the Director of OEP. *EIS section 4.12.4*

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39. Ingleside San Patricio shall develop emergency evacuation routes/methods for the areas along the route of the LNG vessel transit in conjunction with the local emergency planning groups and town officials and file the routes/methods with the Secretary for review and written approval by the Director or OEP **prior to initial site preparation.** *EIS section 4.12.5*
 40. **Prior to initial site preparation,** Ingleside San Patricio shall demonstrate that suitable procedures and coordination exist between Ingleside San Patricio, the Pilots, and the TDOT to minimize delays to ferry operations from LNG carrier transits. *EIS section 4.12.5.3*
 41. The **final design** of the hazard detection equipment shall identify manufacturer and model. *EIS section 4.12.2*
 42. The **final design** of the hazard detection equipment shall include redundancy and fault detection and fault alarm monitoring in all potentially hazardous areas and enclosures. *EIS section 4.12.2*
 43. The **final design** shall specify that open path detectors shall be calibrated to detect the presence of flammable gas and alarm at the lowest reliable set point, in addition to the required 25 percent LEL set point. *EIS section 4.12.2*
 44. The **final design** of the fixed and wheeled dry-chemical, fire extinguishing, high expansion foam hazard control equipment shall identify manufacturer and model. *EIS section 4.12.2*
 45. The **final design** shall include equipment and instrumentation for the measurement of translational and rotational movement of the inner vessel for use during and after cool down. *EIS section 4.12.2*
 46. The **final design** shall include details of the boil-off gas flow measurement system provided for each tank. *EIS section 4.12.2*
 47. The **final design** shall include details of the LNG flow measurement system provided for the top and bottom fill to each tank. *EIS section 4.12.2*
 48. The **final design** shall include a reliable measurement system to monitor deflections during the hydraulic test. At a minimum, this system shall include two slope indicator ducts which bisect the tank in mutually perpendicular directions, monitoring points at the terminals of these ducts, and other monitoring points along the perimeter of the concrete shell, so that sag, warping, tilt, and settlement can be monitored. Tolerances for sag, tilt, and shell warping shall meet or exceed the limits specified by the tank manufacturer. *EIS section 4.12.2*
 49. The **final design** shall include details of the LNG tank tilt settlement and differential settlement limits between each LNG tank and piping and procedures to be implemented in the event that limits are exceeded. *EIS section 4.12.2*

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50. The **final design** shall include drawings and specifications of the spill protection system to be applied to the LNG tank roofs. *EIS section 4.12.2*
 51. The **final design** shall include a discretionary vent for each tank, to be operated through the DCS. The outlet from the vent piping shall be designed to discharge beyond the outer containment, to prevent vapor from flowing into the annular containment. *EIS section 4.12.2*
 52. The **final design** shall include provisions to measure the discharge flow of each intank pump. *EIS section 4.12.2*
 53. 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. *EIS section 4.12.2*
 54. The **final design** shall include provisions to ensure that hot glycol/water circulation is operable at all times when LNG is present in the LNG booster pump discharge piping or when the temperature in the LNG inlet channel to any vaporizer is below 0°F. *EIS section 4.12.2*
 55. The **final design** shall include detection instrumentation and shut down procedures for vaporizer tube leak, shell side overpressure, or bursting disc failure. *EIS section 4.12.2*
 56. The **final design** shall include temperature measurement of the vaporizer common discharge header which shall alarm the low temperature condition. *EIS section 4.12.2*
 57. The **final design** shall include a fire protection evaluation carried out in accordance with the requirements of NFPA 59A, chapter 9.1.2. *EIS section 4.12.2*
 58. The **final design** shall include details of the shut down logic, including cause and effect lists for alarm and shutdown. *EIS section 4.12.2*
 59. 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. *EIS section 4.12.2*
 60. Security personnel requirements for prior to and during LNG vessel unloading shall be filed **prior to commissioning**. *EIS section 4.12.2*
 61. Operation and Maintenance procedures and manuals, as well as emergency plans, emergency evacuation plan and safety procedure manuals, shall be filed **prior to commissioning**. *EIS section 4.12.2*
 62. Copies of the Coast Guard security plan, vessel operation plan, and emergency response plan shall be provided to the FERC staff **prior to commissioning**. *EIS section 4.12.2*

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63. The contingency plan for failure of the outer LNG tank containment shall be filed **prior to commissioning**. *EIS section 4.12.2*
64. A copy of the criteria for horizontal and rotational movement of the inner vessel for use during and after cool down shall be filed **prior to commissioning**. *EIS section 4.12.2*
65. Ingleside San Patricio shall coordinate with the Coast Guard to define the responsibilities of Ingleside San Patricio's security staff in supplementing other security personnel and in protecting the LNG tankers and terminal **prior to commissioning**. *EIS section 4.12.5*
66. 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**. *EIS section 4.12.2*
67. Ingleside San Patricio shall develop an Emergency Response Plan (including evacuation) and coordinate procedures with local emergency planning groups, fire departments, state and local law enforcement, and appropriate federal agencies. This 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;
 - d. evacuation routes for public use areas and residents of areas along the route of the LNG 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 with the Secretary for review and approval by the Director of OEP **prior to commencement of service**. Ingleside San Patricio shall notify FERC staff of all meetings in advance and shall report progress on its Emergency Response Plan at 6-month intervals starting at the commencement of construction. *EIS section 4.12.5*

68. Progress on the construction of the LNG terminal shall be reported in **monthly reports** filed with the Secretary. Details shall include a summary of activities, problems encountered and remedial actions taken. Problems of significant magnitude shall be reported to the FERC within 24 hours. *EIS section 4.12.2*

The following measures shall apply throughout the operational life of the LNG facility.

69. The facility shall be subject to regular FERC staff technical reviews and site inspections on at least a **biennial** basis or more frequently as circumstances indicate. Prior to each FERC staff technical review and site inspection, Ingleside San Patricio 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 annual report, shall be submitted. *EIS section 4.12.2*

70. Semi-annual operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions, abnormal operating experiences, activities (including ship 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 boil-off 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. *EIS section 4.12.2*
71. In the event the temperature of any region of any secondary containment, including imbedded pipe supports, 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. *EIS section 4.12.2*
72. 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 within 24 hours. 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. 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 for five minutes or more that results in pooling;

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- 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 safety-related condition that could lead to an imminent hazard and cause (either directly or indirectly by remedial action of the operator), for purposes other than abandonment, a 20 percent reduction in operating pressure or shutdown of operation of a pipeline or an LNG facility that contains or processes gas or LNG;
 - 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, FERC staff would determine the need for a separate follow-up report or follow-up in the upcoming semi-annual operational report. All company follow-up reports shall include investigation results and recommendations to minimize a recurrence of the incident. *EIS section 4.12.2*