

EXECUTIVE SUMMARY

This final Environmental Impact Statement (EIS) for the Ingleside Energy Center, L.L.C. and San Patricio Pipeline L.L.C. (collectively referred to as Ingleside San Patricio) Ingleside Energy Center LNG Terminal and Pipeline Project (Ingleside Energy Center LNG Project or Project) has been prepared by the staff of the Federal Energy Regulatory Commission (FERC or Commission) to fulfill the requirements of the National Environmental Policy Act (NEPA) and the Commission's implementing regulations under Title 18, CFR, Part 380. The purpose of this document is to inform the public and the permitting agencies about the potential adverse and beneficial environmental impacts of the proposed Project, and its alternatives; and to recommend mitigation measures that would avoid or reduce a significant adverse impact to the maximum extent possible.

The vertical line in the margin identifies text that has been modified in the final EIS and differs from the corresponding text in the draft EIS.

The purpose of the Ingleside Energy Center LNG Project is to introduce a competitive supply of natural gas to Ingleside San Patricio affiliates (Occidental Chemical Company [Occidental Chemical] and Ingleside Cogeneration Partners LP [ICLP]) and other large energy-consuming industries in the Corpus Christi area and deliver natural gas into existing interstate and intrastate natural gas pipelines north of Sinton, Texas. The Project would provide facilities necessary to import, store, and vaporize on average about 1.0 billion cubic feet per day (bcfd) of liquefied natural gas (LNG). In order to accomplish this purpose, Ingleside San Patricio proposes to construct and operate a new LNG import terminal including an LNG ship berth and unloading facilities next to the existing Occidental Chemical manufacturing complex on the northeast shoreline of Corpus Christi Bay, west of Ingleside, in Nueces and San Patricio Counties, Texas. In addition, Ingleside San Patricio would construct and operate a new natural gas pipeline and ancillary facilities extending from the LNG terminal to natural gas pipeline interconnects north of Sinton, in San Patricio County, Texas.

In order to provide these services, Ingleside San Patricio requests Commission authorization to construct and operate the following facilities:

- a new marine terminal basin connected to the La Quinta Channel that would include a ship maneuvering area and one protected berth to unload up to 140 LNG ships per year;
- two double containment LNG storage tanks with a nominal working volume of approximately 160,000 cubic meters (1,006,000 barrels equivalent); and
- LNG vaporization and processing equipment.

Ingleside San Patricio also requests authorization to construct, own, and operate the following facilities for the proposed natural gas sendout pipeline:

- 26.4 miles of 26-inch-diameter natural gas pipeline;
- eight metering stations/delivery points and nine pipeline interconnections with existing natural gas pipeline systems; and

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- a pig launcher facility and tie-in valves at the LNG terminal, a mainline valve near the middle of the pipeline, and a pig receiver facility and a metering and regulating station at the northern pipeline terminus.

PROJECT IMPACTS

Construction of the Ingleside Energy Center LNG Project would affect a total of about 489.7 acres of land and water. Construction of the LNG terminal would require about 74 acres of land, and about 40 acres offshore within the La Quinta Channel for the maneuvering area and marine basin. Ingleside San Patricio's proposed pipeline route would mostly cross agricultural land, following existing easements such as roads and other pipelines. Construction of the proposed pipeline and related facilities would disturb about 375.7 acres, including the construction right-of-way for the pipeline, additional temporary workspaces, a contractor and pipe yard, metering stations/interconnects, a pig launcher and receiver, and access roads. Operation of the new facilities would require a total of about 274.7 acres. About 114 acres would be required for operation of the LNG terminal and utility easements for the terminal and 159.7 acres would be required for permanent easement along the pipeline and about 1.0 acre would be required for operation of new aboveground facilities.

Construction and operation of the Project would have minimal impact on geological resources. One operating oil well would be within 100 feet of the pipeline right-of-way; however, construction of the proposed pipeline would not affect this well. No geologic hazards would be expected to affect the proposed facilities.

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. 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 consulted with the Natural Resources Conservation Service 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 (high salinity). In addition, Ingleside San Patricio would implement the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) during construction and restoration, which would minimize impact on soils.

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 would be on land owned by Alcoa Inc. at its 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 U.S. Army Corps of Engineers (COE) for its proposed Corpus Christi Channel Improvement Project, potential levels of contaminants in the sediments would not be a concern.

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 include use of Spill Prevention and Response Procedures that meet state and federal requirements.

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. 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. 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 horizontal directional drill 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.

Construction of the Ingleside Energy Center LNG Project would affect a total of about 1.07 acres of submerged aquatic seagrass beds, 1.36 acres of coastal marsh, and 3.08 acres of tidal flats 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, U.S. Department of the Interior, Fish and Wildlife Service (FWS), U.S. Environmental Protection Agency (EPA), Texas Parks and Wildlife Department (TPWD), the Texas General Land Office (TGLO), National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries), and the Coastal Bays and Estuaries Program (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.

The primary impact on wildlife associated with the Project 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. Impacts to wildlife would not be significant.

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. Based on our analysis of habitat that would be affected by the Project and other information, we¹ have determined that the Project would have no effect or would not likely adversely affect these species.

NOAA Fisheries identified essential fish habitat (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. NOAA Fisheries reviewed the draft of this EIS and EFH Assessment and provided EFH conservation recommendations to offset adverse project impacts to EFH. We have addressed these recommendations in this final EIS.

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.

The proposed LNG terminal and a portion of the proposed pipeline lie within the designated coastal zone management area. Ingleside San Patricio submitted its COE 404 permit application with the COE during November 2004, but has not received its coastal zone consistency determination from the Railroad Commission of Texas. We have recommended that Ingleside San Patricio not begin construction of any component of its Project until it files a copy of the consistency determination issued by the Railroad Commission of Texas with the Secretary.

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 Texas Department of Transportation (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.

¹ “We,” “us,” and “our” refer to the environmental staff of the FERC’s Office of Energy Projects.

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. Safety measures and the size of the LNG ships may require specific transit procedures within the Corpus Christi Bay ship channels (*e.g.*, daylight movements, one-way traffic, convoys). However, the Aransas-Corpus Christi Pilots (which are responsible for scheduling ship movements and establishing working conditions) indicated that they could continue to escort ships into and out of the Corpus Christi Bay ship channels in a safe and expeditious manner and that the Project would have minimal impacts on ship traffic.

Ingleside San Patricio conducted 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 State Historic Preservation Office (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 the proposed pipeline route have not been surveyed, we have recommended that Ingleside San Patricio not be allowed to construct any pipeline facilities until the necessary reports are filed, the SHPO comments on reports are filed, the Advisory Council on Historic Preservation is given an opportunity to comment if historic properties would be affected, and the Director of Office of Energy Projects provides approval.

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 Texas Commission on Environmental Quality (TCEQ) confirmed that a General Conformity review of the Project is not required. Emissions from the proposed Ingleside Energy Center LNG Project are not expected to exceed 100 tons per year; 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 noise sensitive areas (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 the day-night sound level (L_{dn}) of 55 decibels on the A-weighted scale (dBA). No mitigation is proposed at any of the meter station sites since the predicted levels are below an L_{dn} of 55 dBA.

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 U.S. Coast Guard (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 should 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 6 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.

ALTERNATIVES CONSIDERED

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. 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. However, 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 and placing the facilities on Occidental Chemical property. We also looked at the construction of an offshore terminal to meet the objectives of the proposed 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.

PUBLIC INVOLVEMENT

On May 13, 2004, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Vista del Sol LNG Terminal Project and the Ingleside Energy Center LNG Terminal and Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meeting* (NOI). The NOI was sent to 698 interested parties including federal, state, and local officials; agency representatives; conservation organizations; local libraries and newspapers; residents within 0.5 mile of the proposed LNG terminals; and property owners along the proposed pipeline routes.

On June 9, 2004, the FERC conducted a joint public scoping meeting in Portland, Texas to provide an opportunity for the public to learn more about the proposed Vista del Sol LNG Terminal (Vista del Sol) Project and the Ingleside Energy Center LNG Project and to provide comments on environmental issues to be addressed in the EIS. Twenty-nine people spoke at the meeting, and 13 agencies and individuals submitted written comments in lieu of oral comments. A transcript of the scoping meeting and all written comments provided at the meeting have been entered into the public record for the Ingleside Energy Center LNG Project. On June 9, 2004, the FERC also conducted a site visit, open to the public, of Ingleside San Patricio's LNG terminal site and the pipeline route.

Issuance of the NOI opened the public comment period, with a closing date of June 18, 2004 originally established for receiving written comments. In total, 13 letters were received in response to the NOI. Subsequent to Ingleside San Patricio filing its section 3(a) and 7(c) applications on October 25, 2004, seven parties submitted motions to intervene. Intervenors receive all documentation filed in a proceeding, and have the right to seek rehearing of the Commission's decision.

In addition to the public notice and scoping process discussed above, the FERC conducted agency consultations and participated in interagency meetings to identify issues that should be addressed in this EIS. This included an interagency meeting in Galveston, Texas on May 18, 2004 to discuss the Project and the environmental review process with other key federal and state agencies. These agencies included the COE; Coast Guard; NOAA Fisheries; FWS; U.S. Environmental Protection Agency; U.S. Department of Transportation; Railroad Commission of Texas; TGLO, Coastal Management Program; and TPWD. The FERC staff also met with the Coast Guard, Port of Corpus Christi, and a representative of the Aransas - Corpus Christi Pilots on June 9, 2004.

The draft EIS was filed with the U.S. Environmental Protection Agency and a formal notice was published in the *Federal Register* on March 2, 2005 indicating that the draft EIS was available. The draft EIS was mailed to the agencies, individuals, and organizations on the mailing list prepared for the Project (appendix A). In accordance with the Council on Environmental Quality regulations implementing NEPA, the public had 45 days (until April 18, 2005) to provide written comments on the draft EIS. Additionally, a public meeting to receive comments on the draft EIS was held on March 30, 2005 in Portland, Texas. Fifteen people offered comments at this public meeting. A transcript of the public meeting has been entered into the public record for the Ingleside Energy Center LNG Project. All timely comments and letters received on the draft EIS are addressed in this final EIS (appendix H).

MAJOR CONCLUSIONS

We conclude that, with the use of Ingleside San Patricio's proposed mitigation and adoption of our recommended mitigation measures, construction and operation of the proposed facilities would have limited adverse environmental impact. The impacts would be most significant during the construction period. As part of our analysis, we have developed specific mitigation measures that we believe to be appropriate and reasonable for construction and operation of the Project. We believe these measures would substantially reduce the environmental impact of the Project.

The primary reasons for our decision are:

- Ingleside San Patricio would use land owned by Occidental Chemical and combine its facilities with the Occidental Chemical manufacturing complex, to offset each others respective heating and cooling needs. Water that would be cooled during the vaporization process would be returned to these facilities for reuse and 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;
- Ingleside San Patricio would implement the FERC's Plan and Procedures to minimize impact on soils, wetlands, and waterbodies. In addition, Ingleside San Patricio would segregate and replace the top 20 inches of topsoil along its pipeline to avoid mixing the topsoil with subsoil with a high sodium content (high salinity);
- Ingleside San Patricio would dispose of dredged material at its preferred primary disposal area on land owned by Alcoa Inc.;
- Ingleside San Patricio initiated and is continuing consultation with federal and state agencies regarding the development of a mitigation plan that would compensate for impacts to aquatic resources directly within and adjacent to the Project area, and filed a Draft Wetland Mitigation Plan with the Commission;
- we believe that the Project would have no effect or would not be likely to adversely affect any federally or state listed threatened or endangered species;
- the Aransas-Corpus Christi Pilots indicated that they could continue to escort ships into and out of the Corpus Christi Bay ship channels in a safe and expeditious manner and that the Project would have minimal impacts on ship traffic;
- safety features would be incorporated into the design and operation of the LNG import terminal and vessels; and
- 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.