

EXECUTIVE SUMMARY

This final environmental impact statement (EIS) for the Creole Trail LNG Terminal and Pipeline Project (Creole Trail Project) proposed by Creole Trail LNG, L.P. and Cheniere Creole Trail Pipeline Company¹ (collectively referred to as Creole Trail) 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, Code of Federal Regulations (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 any significant adverse impact to the maximum extent possible.

The FERC is the federal agency responsible for authorizing applications to construct and operate onshore LNG import and interstate natural gas transmission facilities. The U.S. Coast Guard (Coast Guard) is the federal agency responsible for issuing a Letter of Recommendation (LOR) regarding the suitability of the waterway for LNG marine traffic. The Coast Guard exercises regulatory authority over LNG facilities that affect the safety and security of port areas and navigable waterways under Executive Order 10173; the Magnuson Act (50 United States Code (USC) section 191); the Ports and Waterways Safety Act of 1972, as amended (33 USC section 1221, et seq.); and the Maritime Transportation Security Act of 2002 (46 USC section 701). The Coast Guard is responsible for matters related to navigation safety, vessel engineering and safety standards, and all matters pertaining to the safety of facilities or equipment located in or adjacent to navigable waters up to the last valve immediately before the receiving tanks. The Coast Guard also has authority for LNG facility security plan review, approval, and compliance verification as provided in Title 33 CFR Part 105, and siting as it pertains to the management of marine traffic in and around the LNG facility.

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 proposed project is to provide the facilities necessary to meet growing demand for natural gas in the United States by: providing access to liquefied natural gas (LNG) supplies from diverse areas of the world for shippers desiring to contract for the receipt, storage, and vaporization of LNG; enhancing the reliability and stability of the natural gas supply; and connecting the new LNG terminal with existing interstate and intrastate natural gas pipeline systems to provide access to Gulf Coast, midwest, northeast, and Atlantic markets. To accomplish this purpose, Creole Trail proposes to construct and operate a new LNG import terminal in Cameron Parish, Louisiana that would include LNG ship unloading berths, LNG storage, and vaporization. Creole Trail would also construct new natural gas pipelines to deliver natural gas to several points of interconnection along the proposed pipeline routes. Creole Trail's proposed facilities would have an average sendout capacity of 3.3 billion cubic feet per day (Bcf/d) of natural gas and a total plant capacity of 3.8 Bcf/d.

To provide these services, Creole Trail is requesting Commission approval under section 3(a) of the Natural Gas Act (NGA) for the LNG terminal consisting of the following facilities:

¹ On March 23, 2006, Cheniere Creole Trail Pipeline Company filed a letter with the Commission stating that on or about March 31, 2006, Cheniere Creole Trail Pipeline Company will be merged under Delaware law into Creole Trail Pipeline, L.P. Creole Trail Pipeline, L.P. will be formed solely for the purpose of acquiring Cheniere Creole Trail Pipeline Company and will be the surviving legal entity. Cheniere Creole Trail Pipeline Company requests in its letter that the Commission issue a certificate of public convenience and necessity to Creole Trail Pipeline, L.P.

- a ship unloading slip with two protected berths, each equipped with three liquid unloading arms and one vapor return arm;
- four LNG storage tanks, each with a usable volume of 1,006,400 barrels (160,000 cubic meters (m³));
- twenty-one high pressure LNG sendout pumps, each with a capacity of 1,686 gallons per minute (384 m³ per hour);
- twenty-one high pressure submerged combustion vaporizers (SCV), each with a capacity of 183 million cubic feet per day (MMcfd);
- three boil-off gas compressors; and
- ancillary utilities, buildings, and service facilities at the LNG terminal.

In addition, Creole Trail is requesting Commission approval under section 7(c) of the NGA for pipeline facilities consisting of:

- Segment 2: 25.3 miles of dual 42-inch-diameter natural gas pipeline;
- Segment 3: 91.5 miles of dual 42-inch-diameter natural gas pipeline;
- 17 meter and regulation (M&R) facilities; and
- associated pipeline facilities including pig launcher and receiver facilities, and eight MLVs along each of the individual pipelines in the dual pipeline system.

PROJECT IMPACTS

The environmental issues associated with construction and operation of the Creole Trail Project are analyzed in this final EIS using information provided by Creole Trail and further developed from data requests; field investigations; literature research; alternatives analysis; contacts with federal, state, and local agencies; and input from public groups and organizations. Major findings and conclusions are summarized below.

Most of the land affected by the project is agricultural land, rangeland (consisting of non-forested wetlands and coastal prairie/grasslands), forest land (including forested wetlands), developed land, and open water. Construction would affect a total of 3,096.9 acres of land for the LNG terminal and pipelines. Operation of the proposed facilities would affect 1,216.7 acres of land, of which 123.7 acres would be converted permanently for operation of the LNG terminal facilities, 12.1 acres would be converted permanently for operation of pipeline aboveground facilities, and 14.4 acres would be modified for permanent access roads. The remainder would comprise the permanent pipeline rights-of-way.

Construction and operation of the project would have minimal impacts on geological resources. The LNG terminal and pipeline would be in an area of low seismic risk and earthquake hazards. Due to soft sediments at the LNG site, measures such as soil improvement and the use of deep-driven pile foundations have been incorporated into the LNG facility design. Creole Trail would implement a field testing program during construction to ensure that the final foundation designs would meet the stringent stability requirements of the LNG tanks and other heavy load structures at the site. To ensure the safety

of slopes at the proposed LNG terminal, we² have recommended that Creole Trail file a slope stability analysis for the proposed final slopes at the LNG terminal prior to construction. The potential for shoreline erosion to occur at the LNG terminal site would be minimized by using articulated concrete block mats, bulkheads, and/or geotextile materials.

There are 14 oil and gas wells located on the property to be leased for the LNG terminal, and 22 plugged or abandoned wells appear to be within 150 feet of the proposed pipelines. Creole Trail would field locate wells and associated gathering lines prior to construction. If a well location falls within the project construction or operation limits, the well would be removed to a deeper depth or avoided by a minor route adjustment. If a non-reported abandoned gas or oil well were discovered during construction, Creole Trail would implement a response protocol that includes notifications, spill control, and cleanup measures.

Storm surge and waves associated with hurricanes could damage critical components of the LNG terminal. Creole Trail assessed the magnitude and likelihood of storm surge and wave action at the site, including the effects of Hurricane Rita which made landfall near the site in September, 2005. Structural and mechanical elements have been designed into the LNG terminal facilities to withstand the effects of coastal flooding and storms which are likely to occur at the site.

Biogenic gas was not found during geotechnical investigations completed at the LNG terminal site. However, because soils in the project area contain organics that could possibly produce biogenic gas, Creole Trail would install positive ventilation systems beneath buildings and structures that would be occupied and would be located at ground level, thus mitigating the potential for biogenic gas to accumulate.

Construction of the LNG terminal would affect soils that generally consist of materials dredged from coastal marshes during construction and maintenance of the Calcasieu Ship Channel. Soil impacts at the site would be minor; the soils are not prime farmland and have been affected by previous dredge disposal activities and by oil and gas exploration and production. Construction of the proposed pipelines would affect hydric and prime farmland soils. To minimize impacts on soils, Creole Trail would implement our *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), with approved variances, during construction of the LNG terminal and pipeline facilities. To minimize erosion and sedimentation during the period between backfill of the first and second pipelines along the dual pipeline segments, Creole Trail would stabilize the construction right-of-way until the second line is installed by applying a Natural Resources Conservation Service-approved seed mix within 10 days of backfilling the trench. Creole Trail would maintain all erosion and sedimentation control devices until the second line is installed and final restoration achieves at least 80 percent vegetation cover as compared to adjacent, undisturbed areas.

The sampling and analysis conducted by Creole Trail indicate that most of the soils and sediments within the proposed dredging footprint for the LNG marine facilities are not contaminated. However, one sample from a single sediment core contained measurable concentrations of several polycyclic aromatic hydrocarbons, three of which the Environmental Protection Agency (EPA) stated are highly bioaccumulative. In its comments on the draft EIS, the EPA recommended further evaluation of this sample station. We have recommended that Creole Trail consult with the EPA and the U.S. Army Corps of Engineers (COE) regarding the need to conduct further evaluation of this sampling station and file copies of associated communication and the results of any additional testing with the Secretary prior to dredging at the LNG terminal. With the possible exception of the site mentioned above, the potential

2 "We," "us," and "our" refer to the environmental staff of the FERC's Office of Energy Projects.

to encounter contaminated soils during construction of the LNG terminal and pipelines is relatively low. However, to ensure that personnel are adequately prepared if contaminated soils or groundwater are encountered during construction, we have recommended that Creole Trail file a Plan for the Discovery and Management of Contaminated Soils and Groundwater.

Construction and operation of the project would not have a significant impact on groundwater resources in the project area, including the underlying Chicot Aquifer. Segment 3 would cross nine Wellhead Protection Areas. No public water supply wells or springs are within 150 feet of the proposed construction right-of-way. However, Creole Trail identified four private water supply wells within 150 feet of the construction right-of-way along Segment 3. To protect existing water supply wells, the construction workspace would be reduced to provide a buffer, and mats or pads would be used in work areas where the route crosses water well piping. Creole Trail would conduct pre- and post-construction monitoring and, if a well or water supply is adversely affected, Creole Trail would provide an alternative potable source of water until the original water source has been reestablished. Field surveys also identified three water irrigation outlets within the proposed permanent right-of-way along Segment 3, and two additional water irrigation outlets within proposed temporary work space along Segment 3. Creole Trail would work with the affected landowners to relocate the irrigation outlets and to ensure the continued operation of the irrigation systems in accordance with landowner requirements.

The greatest potential for impact on groundwater would be from spills, leaks, or other releases of hazardous substances during project construction or operation. To minimize the potential effects of a hazardous substance release, Creole Trail would implement the preventative and mitigative measures specified in its *Spill Prevention, Containment, and Countermeasures Plan* (SPCC Plan), which would be filed with the Implementation Plan that would be required prior to construction.

The LNG terminal and pipeline system would be within the Calcasieu and Mermentau River watersheds. The primary impact on surface waters from construction of the LNG terminal would be the dredging of approximately 4.1 million cubic yards (yd³) of material from the area in and adjacent to the Calcasieu Ship Channel for construction of the marine basin and tugboat dock. The dredging would result in the conversion of 49.8 acres of land to open water. Creole Trail would use hydraulic dredging, which would be expected to result in lower suspended sediment concentrations as compared to other dredging methods. Creole Trail anticipates that minimal maintenance dredging would be required. Creole Trail is in the process of developing a plan, in cooperation with the COE, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries), U.S. Fish and Wildlife Service (FWS), Louisiana Department of Wildlife and Fisheries (LADWF), and other agencies for the beneficial use of the dredged material. Creole Trail would also be required to replace a dredge material placement area (DMPA) at the LNG terminal site that is used by the COE and would no longer be available once the LNG terminal is constructed. Recently enacted legislation provides for a land exchange in which property tracts within this COE DMPA are to be replaced by another property referred to as "Area M." Area M is a currently approved DMPA for the COE. In comments on the draft EIS, the Port of Lake Charles requested that the Commission condition any authorization of the Creole Trail Project on Creole Trail taking full responsibility to secure a replacement DMPA with a disposal capacity equivalent to that of DMPA "O" that is acceptable to the COE and the Port of Lake Charles. It is our understanding that the COE will not approve an Aquatic Resources Mitigation Plan (ARMP) without having a final agreement on a replacement for its DMPA at the proposed terminal site. Because the draft ARMP is still under review by the agencies, we have recommended that Creole Trail file a copy of the final approved ARMP with the Commission prior to the start of construction. We have revised this recommendation to explicitly include the Port of Lake Charles as one of the agencies to be involved in this process.

As with other large cargo ships, LNG carriers would take on some ballast water to maintain stability and trim as they off-load their cargo, but they would not be fully loaded when departing the Creole Trail LNG terminal. The amount of ballast water required by each LNG carrier would vary according to its size and the weather conditions. Ballast water intakes could also entrain and/or impinge juvenile fish, fish larvae, and eggs. Since ballast water would not be released into the Calcasieu Ship Channel there is little chance for the introduction of invasive species through the release of ballast water. In addition to ballast water, LNG carriers (as with other large ships) would intake and discharge some water for cooling during operations in the Calcasieu Ship Channel.

The pipeline would cross 175 waterbodies, including 43 perennial streams, 1 lake (Calcasieu Lake), 4 manmade ponds, 65 intermittent streams, and 62 manmade ditches. Ten of these waterbodies, as well as Calcasieu Lake (crossed by portions of Segment 2), are considered to be major waterbody crossings (greater than 100 feet wide). To minimize impacts, Creole Trail proposes to conduct 14 horizontal directional drilling (HDD) operations (some of which would encompass more than one waterbody) to install the pipeline under 28 waterbodies. These HDDs also include two land-to-water HDDs where the pipeline would enter and exit Calcasieu Lake. We have recommended that Creole Trail file a site-specific plan for each proposed HDD crossing that would be implemented in the event that an HDD is unsuccessful. We have also recommended that Creole Trail develop and file a Drilling Mud Contingency Plan for each waterbody proposed to be crossed by the HDD method. Further, in response to comments from the COE and the LADWF, we have recommended that Creole Trail evaluate the feasibility of using the HDD method to cross two waterbodies that are currently proposed as open-cut crossings, Indian and Marsh Bayous, and develop site-specific construction plans for these crossings in coordination with the COE and LADWF.

Eleven of the waterbodies crossed by the proposed pipeline routes are categorized by the Louisiana Department of Environmental Quality as impaired. All except two of these waterbodies would be crossed by HDD, which would avoid disturbance of the streambanks and bottoms. The other two waterbodies, which would be crossed by the open-cut method, are listed as impaired due to low dissolved oxygen or organic enrichment; they are not listed as containing metals. These waterbodies would be crossed in accordance with our Procedures. To further minimize impacts on surface waters, Creole Trail would develop and implement the measures described in a project-specific SPCC Plan, our Plan and Procedures, and the requirements in the permits issued by the other federal and state agencies.

Construction of the project would affect a total of 209.6 acres of wetlands. About 34.5 acres of wetlands would be permanently lost for development the LNG terminal facilities. Along the pipeline system, about 25.4 acres of forested wetland and 2.8 acres of scrub-shrub wetland would be permanently converted to other wetland types. All other wetlands affected by pipeline construction would be restored and allowed to revegetate and return to preconstruction conditions. About 68.4 acres of temporarily affected wetlands at the LNG terminal would be maintained in an herbaceous state. To minimize temporary construction impacts on wetlands, Creole Trail would implement the protective measures in our Procedures. Additionally, Creole Trail would cross several wetlands along the proposed pipeline rights-of-way using the HDD method, which would avoid impacts on those wetlands.

Creole Trail has prepared a draft ARMP and is coordinating with federal and state agencies to finalize this plan. The draft ARMP describes impacts on wetlands, waterbodies, essential fish habitat (EFH), and other aquatic resources; evaluates potential DMPA sites; and describes proposed or anticipated restoration, mitigation, and monitoring measures. As proposed, Creole Trail would mitigate for impacts on wetlands by creating about 154.3 acres of tidal wetlands at the selected DMPA site. To mitigate for wetland impacts resulting from pipeline construction, Creole Trail proposes to purchase a total of 74.7 acres of wetland mitigation credits from approved wetland mitigation banks (based on a 1:1 ratio for temporarily affected forested wetlands and a 2:1 ratio for permanently affected forested

wetlands). Because the ARMP is still being developed in cooperation with the appropriate agencies, we have recommended that Creole Trail file the final, approved ARMP with us prior to construction.

Project construction activities would result in the disturbance of about 2,320.2 acres of vegetation. Approximately 123.7 acres of land would be converted for operation of the LNG terminal including 49.8 acres that would be converted permanently to open water for the marine basin and tugboat dock. These impacts are not expected to be significant on a regional scale, as large areas with vegetative characteristics similar to those that currently exist onsite surround the LNG site. Upon completion of pipeline construction, 304.2 acres of forest land (including forested wetlands) would be maintained permanently in an herbaceous state for the operational right-of-way or aboveground facilities. All other construction workspace along the pipeline would be restored to pre-construction conditions and revegetated.

The primary impact on wildlife would be associated with the cutting, clearing, and/or removal of existing vegetation within the construction work areas and the permanent loss of habitat associated with new aboveground facilities. Disturbance, displacement, and mortality of individuals would occur during construction, and displacement would occur during operation due to the permanent conversion of coastal prairie/grassland habitat at the LNG terminal site. Overall, project impacts are not expected to substantially affect local wildlife or wildlife population movements.

Alteration of benthic community patterns during construction in Calcasieu Lake could make the pipeline rights-of-way temporarily unavailable as feeding areas or habitat for fishes or other bottom feeding species. There would be no impacts from the operation of the pipelines in the lake because they would be buried beneath the lake bottom. The proposed pipelines would cross oyster habitat in Calcasieu Lake. Oysters inhabiting the areas directly affected by construction could be destroyed, and oysters in adjacent areas could be affected by increased turbidity or by deposition of sediments suspended by construction activities. To minimize impacts on oyster fisheries during the Calcasieu Lake crossing, Creole Trail would construct the pipeline in Calcasieu Lake during the summer months, install turbidity curtains on the edges of the construction corridor next to construction equipment within 1,500 feet of active oyster leases, and restore disturbed habitat to pre-construction contours. Creole Trail's draft ARMP identifies other potential mitigation measures that are subject to further coordination with appropriate regulatory agencies. These additional measures include providing cultch and seed to repopulate affected oyster areas; creating up to 45 acres of reef for finfish and oysters; implementing a monitoring plan to document cultch planting and measure the success of created reefs; and monetary compensation to the LADWF.

NOAA Fisheries indicated that the project has the potential to affect EFH for postlarval, juvenile, and subadult life stages of white shrimp and brown shrimp; the postlarval, juvenile, and subadult, life stages of red drum (EFH for the adult stage of red drum is also present in the general vicinity, including an area that could potentially be affected if DMPA Alternative 4 is selected); and the late juvenile, subadult, and adult life stages of bonnethead shark. The primary impact of construction and operation of the project facilities on EFH would be the alteration and direct loss of habitat types that could function as EFH for these species. In addition, EFH impacts are possible if there is significant loss of prey for managed species. Approximately 64.3 acres of emergent wetlands that provide potential EFH would be temporarily affected by the construction of the LNG terminal facility. In addition, 51.9 acres of existing open water adjacent to the site would be dredged during construction. A total of 15.7 acres of wetlands that provide potential EFH would be lost permanently for operation of the LNG terminal. An additional 49.8 acres of open water habitat would be created by construction of the proposed marine facilities. Pipeline construction would temporarily affect 735.7 acres of EFH, including 692.7 acres of EFH associated with Calcasieu Lake. Use of the HDD method would avoid a total of 0.9 mile of EFH. NOAA Fisheries has not yet verified Creole Trail's estimated EFH impacts.

Twenty-one federal and state-listed endangered and threatened species were identified as potentially occurring in the project area. Creole Trail has agreed to incorporate the updated version of NOAA Fisheries *Vessel Strike Avoidance and Injured/Dead Protected Species Reporting Plan* into the Terminal Use Agreement that would be signed between Creole Trail and LNG shippers docking at the LNG terminal. These measures would minimize the potential for whale encounters and collisions by LNG vessels serving the proposed LNG terminal. In addition, NOAA Fisheries and Creole Trail identified several measures that Creole Trail has agreed to implement to minimize the potential impacts of pile driving on sea turtles and marine mammals, including but not limited to the use of bubble curtains and visual monitoring, as well as seasonal restrictions to be implemented DMPA Alternative 4 is used for disposal of dredged material during construction of the LNG terminal. With the implementation of these measures, activities associated with construction of the proposed LNG terminal are not likely to adversely affect sea turtles. Our analysis and comments received to date from the FWS and an April 24, 2006 concurrence letter from the NOAA Fisheries indicate that, with the implementation of our recommendations, the project is not likely to adversely affect 20 of the species identified. The FWS has recommended that Creole Trail conduct additional surveys and foraging habitat analyses for the red-cockaded woodpecker (RCW) at select locations on Segment 2; therefore, we do not have enough information to allow for a complete review of potential impacts on the RCW. We have recommended that Creole Trail consult further with the FWS after conducting the additional surveys recommended by the FWS.

Because we have not completed consultations with the FWS, we have recommended that Creole Trail not begin construction until we complete this consultation and Creole Trail receives written notification from the Director of the Office of Energy Projects (OEP) that construction and/or implementation of conservation measures may begin. Additionally, we have recommended that, if construction does not begin within 1 year of issuance of FERC authorization, Creole Trail consult with the appropriate offices of the FWS and NOAA Fisheries to update the species list and to verify that previous consultations and determinations are still current.

Land use impacts associated with the project would include disturbance of existing land uses within construction work areas at the LNG terminal site and along the pipelines during construction (3,096.9 acres), permanent conversion of the LNG terminal property to industrial use (123.7 acres), and a new permanent right-of-way for the operation and maintenance of the pipelines and aboveground facilities (1,078.6 acres).

There are no residences within 1 mile of the proposed LNG terminal, and no current proposals for residential development within 0.25 mile of the site. The project would not conflict with any approved commercial development plans. Based on the LNG facility location and the generally low topographic relief, the proposed LNG facilities would dominate the area viewshed and result in temporary and permanent changes to the surrounding visual landscape. Because of flat terrain and the size of the facility, no measures can be taken to visually screen the LNG terminal.

The LNG terminal site includes an abandoned petroleum storage tank battery that would be removed prior to construction in accordance with applicable state regulations. Creole Trail would also remove an abandoned 6-inch-diameter production flow line owned by Apache Corporation that has been inactive for more than 10 years and is located beneath the proposed LNG tanks. We have recommended that Creole Trail file additional information describing how it would remove and dispose of these abandoned facilities, including a discussion of how contaminated materials, if present, would be managed.

Nine residences are located within 50 feet of the proposed pipeline construction work areas (one additional residence within 50 feet of the work area was destroyed by recent hurricane activity). To

minimize disruptions to these residences, Creole Trail would use specialized construction techniques, limit the duration of open trenches, promptly restore driveways and fences, and maintain access to each residence. Creole Trail has filed site-specific plans for residences within 25 feet of the construction area. We have recommended that Creole Trail file an updated site-specific plan for one residence where access has not yet been granted once access has been obtained. We have also recommended that Creole Trail file, prior to construction, evidence of landowner concurrence if the construction work area and fencing would be located within 10 feet of a residence.

The only recreational area within 0.25 mile of the LNG terminal is the Creole Nature Trail National Scenic Byway, which is also State Highway 27/82. The proposed pipelines would cross two Louisiana Natural and Scenic Rivers: Barnes Creek and the Calcasieu River. These rivers would be crossed by the HDD method which would avoid disturbance of the stream bottoms or banks. Two visually scenic byways, the Creole Nature Trail National Scenic Byway and the Zydeco Cajun Prairie Scenic Byway, would be crossed by the dual pipelines. Impacts on these byways would be short term and would be minimized by the use of the road bore construction method. Segment 3 would cross the Barnes Creek Savannah Natural Area. Impacts on this natural area would be minimized by collocation with an existing right-of-way. Other recreational areas in the vicinity of the proposed pipeline route include the Cameron Prairie National Wildlife Refuge and the Crown Point Distinctive Site. These areas are within 0.25 mile of the route, but would not be crossed by the proposed pipelines.

A large portion of the project would be located within the Louisiana coastal zone management area. Creole Trail has applied for but not yet received its Coastal Zone Management Program (CZMP) consistency determination from the LADNR. We have recommended that Creole Trail not be allowed to begin construction until it has received its CZMP consistency determination.

The project would result in short- and long-term socioeconomic impacts resulting from additional tax revenues at the state and parish levels, and from the temporary influx of construction personnel. Housing and traffic in the project area may be further affected as a result of recent hurricane activities and associated cleanup efforts. Creole Trail would employ between 86 and 103 full-time workers to maintain and operate the proposed LNG terminal and pipeline facilities. During the scoping period, we received several comments in support of the project related to the potential socioeconomic benefits.

Creole Trail consulted with the Louisiana State Historic Preservation Officer (SHPO) and performed cultural resource investigations for areas that would be potentially affected by construction of the LNG terminal and pipeline system (the area of potential effect). No prehistoric or historic cultural resources were located at the LNG terminal site. Creole Trail also requested that the Louisiana SHPO review its proposed dredge material placement area alternatives. The Louisiana SHPO has concurred that no known archaeological sites or historic properties would be affected by the use of these areas.

To date, the surveys that have been completed for the pipeline facilities identified 1 cultural resource along Segment 2 and 10 cultural resources along Segment 3. The Segment 2 cultural resource has been previously determined to be not eligible for listing on the National Register of Historic Places (NRHP) and would be avoided. Three of the 10 cultural resources along Segment 3 are recommended eligible for listing on the NRHP. Creole Trail realigned its proposed pipeline route to avoid impacts on one of these sites and has stated it would avoid impacts on the other two sites. Underwater surveys of the pipeline route in Calcasieu Lake identified 88 magnetic anomalies. Creole Trail proposes to avoid these sites. If any of the anomalies cannot be avoided, Creole Trail would conduct additional investigations to determine if they represent potential shipwrecks. If a potential buried shipwreck was discovered, an archaeological diver would assess the site for potential eligibility for listing on the NRHP.

Cultural resource surveys have not been completed for portions of the pipeline route where land owners have denied access, and the SHPO's comments are pending. We have recommended that Creole Trail not be allowed to construct any facilities or use any temporary work areas or access roads until it files the survey reports, any required treatment plans, and the SHPO comments with the Commission, and is given written authorization to proceed by the Director of OEP.

Air emissions resulting from construction of the LNG terminal and pipelines would be short term and would not significantly affect air quality in the region. Creole Trail would minimize fugitive dust emissions during construction by the use of dust suppression techniques such as watering. During operation, air emissions would result from the operation of the LNG facility equipment, from maneuvering and hoteling of LNG ships at the marine berth, and from onsite natural gas electric turbine generators. The proposed project would be located in an attainment area; therefore, the General Conformity requirements do not apply. The terminal would be subject to applicable state air permitting requirements. As requested by the Louisiana Department of Environmental Quality (LADEQ) in its comments on the draft EIS, information in this EIS regarding emissions sources and estimated emissions has been revised to reflect the information included in a January 2006 supplement that Creole Trail filed with the LADEQ for its pending air permit application. We have recommended that Creole Trail file a complete copy of its air permit application with the Commission prior to beginning construction of the LNG terminal. The use of shell and tube vaporization technology (STV) was considered as an alternative to the proposed SCVs based on comments from the Texas Commission on Environmental Quality. Because Creole Trail has proposed control technologies on the SCVs and turbine generators and would have to demonstrate the use of best available control technology on significant emissions sources, we did not recommend the use of STV instead of SCV technology.

Noise impacts associated with construction of the LNG terminal are expected to be minimal at the nearest noise-sensitive areas. No adverse, long-term impacts are expected based on calculated noise levels anticipated from operation of the LNG terminal.

We evaluated the safety of both the proposed facilities and the related LNG vessel transit through the Calcasieu Ship Channel. As part of our evaluation, we performed a cryogenic design and technical review of the proposed terminal design and safety systems. Several areas of concern were noted with respect to the proposed facility, and specific recommendations have been identified to be addressed: prior to initial site construction; prior to construction after final design; prior to commissioning; or prior to commencement of service.

Thermal radiation and flammable vapor hazard distances were calculated for an accident or an attack on an LNG vessel. For 1.0-, 1.4-, 2.5-, 3.0-, and 3.9-meter-diameter holes in an LNG cargo tank, we estimated distances to range from 2,164 to 5,250 feet for a thermal radiation level of 1,600 British thermal units per foot squared per hour, the level which is hazardous to unprotected persons located outdoors. However, the evaluation of safety is more than an exercise in calculating the consequences of worst case scenarios. Rather, it is a determination of the acceptability of risk which considers: the probability of events, the effect of mitigation, and the consequences of events. 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 should be considered negligible.

As part of our marine safety analysis, we considered how vessel security requirements for LNG ships calling on the proposed LNG terminal might affect other ship and boat traffic in Calcasieu Ship Channel. Based on the Coast Guard's longstanding experience in controlling the movements of

dangerous cargo vessels in the Calcasieu Ship Channel (including LNG vessels), potential impacts can be evaluated for several general security requirements: 1) moving safety zone for inbound and outbound LNG vessels; 2) security zone around a moored LNG vessel; and 3) other measures as deemed appropriate. If the Coast Guard issues a LOR finding the waterway suitable for LNG marine traffic, the moving safety zone, and the security zone at the terminal, may affect other commercial, ferry, and recreational traffic using the channel. The impact on Cameron Ferry traffic would generally be small because the ferry only crosses the LNG ship route and conflicts could be managed by schedule coordination. The Cameron Ferry Marine Operations Supervisor, the ferry Captains, and the Lake Charles Pilots are accustomed to working together to ensure safe and efficient marine operations.

The extent of the impact on recreational boaters would depend on the number of boats in the project area during the multiple LNG vessel transits per week when LNG ships would call on the LNG terminal, and on several other variables such as the size of the Coast Guard-imposed moving safety and moored security zone and the width of the channel at the point where a boat encounters the LNG ship. However, the Lake Charles Pilots have stated that this safety zone does not include recreational vehicles, which are requested to transit along the bank furthest from the LNG vessel. Vessels attempting to travel through the channel while an LNG ship is being maneuvered into the berth may experience delays up to 60 minutes. To minimize potential impacts on other marine traffic, the Coast Guard is expected to use a program of announcements to give advance notice of each moving safety and moored security zone schedule and could schedule the transit of LNG ships for times of day less likely to affect recreational boaters.

Unlike accidental causes, historical experience provides little guidance in estimating the probability of a terrorist attack on an LNG vessel or onshore storage facility. For an LNG import terminal proposal that would involve having a large volume of energy transported and stored near populated areas, the perceived threat of a terrorist attack is a primary concern of the local population and requires that resources be directed to mitigate possible attack paths. While the risks associated with the transportation of any hazardous cargo can never be entirely eliminated, they can be managed.

The Coast Guard, with input from various stakeholders, which included the Lake Charles Harbor and Terminal District, marine pilots, towing industry representatives, and members of the Calcasieu Area Harbor Safety Committee and Area Maritime Security Committee, has completed a review of Creole Trail's Waterway Suitability Assessment (WSA) in accordance with the guidance in Coast Guard Navigation and Vessel Inspection Circular 05-05 (NVIC 05-05). The WSA review focused on the navigation safety and maritime security risks posed by LNG marine traffic, and the measures needed to responsibly manage these security risks. As a result of this review, the Coast Guard has preliminarily determined that the Calcasieu River to the proposed LNG terminal in Cameron, Louisiana may be suitable for accommodating the type and frequency of LNG vessels being proposed by the applicant. This determination, however, was contingent upon the port security community having the appropriate resources to implement all the measures necessary to responsibly manage the safety and security risks of LNG marine traffic in this area.

An issue that has developed for several LNG terminal projects is a concern that local communities would have to bear some of the costs of ensuring the security/emergency management of the LNG facility and the LNG vessel while in transit and unloading at the dock. While the LOR would address the suitability of the Calcasieu Ship Channel for LNG ship transportation, it would not constitute a final authority to commence LNG operations. Issues related to the public impact of safety and security zones would be addressed later in the development of the Coast Guard's *Liquefied Natural Gas Vessel Management and Emergency Plan*. This plan would be reviewed and updated as necessary to address issues specific to the Calcasieu Ship Channel and the proposed LNG terminal. In addition, the Coast Guard may establish a safety and security zone under 33 CFR 165 for LNG vessels in transit and while

docked. Only personnel or vessels authorized by the Captain of the Port would be permitted in the safety and security zone.

Section 311 of the Energy Policy Act of 2005, stipulated that in any order authorizing an LNG terminal the Commission shall require the LNG terminal operator to develop an Emergency Response Plan in consultation with the Coast Guard and state and local agencies. The FERC must approve the Emergency Response Plan prior to any final approval to begin construction. The Cost-Sharing Plan shall contain a description of any direct cost reimbursements the applicant agrees to provide to any state and local agencies with responsibility for security and safety at the LNG terminal and near vessels that serve the facility.

There are four proposed or approved LNG projects along the Calcasieu Ship Channel: the Creole Trail Project (which is addressed in this EIS), the Cameron LNG Project (which was approved by the Commission in September 2003), the Cameron LNG Expansion Project (an expansion of the Cameron LNG Project and currently under review by the Commission), and the Trunkline LNG and Loop Project (an expansion of an existing LNG terminal at Lake Charles, which was approved by the Commission in September 2004; construction for this expansion is ongoing). If the Creole Trail Project is approved in addition to these projects, all four LNG projects would result in cumulative impacts on land use, wetlands, and ship traffic in the Calcasieu Ship Channel. Additionally, if all or some of the several approved and proposed pipeline projects in the region are constructed, they would result in cumulative impacts on biological resources, socioeconomics, and land use. We have recommended that for areas where the Creole Trail Project would be collocated with one or more planned pipeline(s) adjacent to an existing right-of-way, the first pipeline to be constructed should be constructed closest to the existing right-of-way, and the Creole Trail pipeline should be constructed with a 25-foot offset from the nearest existing pipeline. We have also recommended that Creole Trail file alignment sheets and environmental information to support the new alignment with the Secretary for review and written approval by the Director of OEP.

ALTERNATIVES CONSIDERED

The EIS addresses alternatives to the proposed actions before both the FERC and the Coast Guard. The proposed action before the FERC is to consider issuing to Creole Trail a section 3 authorization for the LNG import facilities and a section 7 Certificate of Public Convenience and Necessity for new natural gas pipelines. The proposed action before the Coast Guard is issuance of a Coast Guard LOR finding the waterway suitable for LNG marine traffic, with certain conditions. Section 3 of the EIS clearly describes the criteria for alternative selection.

We evaluated the alternatives of no action or postponed action, system alternatives, alternative LNG terminal sites, pipeline system alternatives, route alternatives, and route variations. 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 and Creole Trail would not be able to provide a new source of natural gas supply to the United States.

For the Coast Guard's proposed action, the no action alternative would be issuance of a Coast Guard LOR finding the waterway not suitable for LNG marine traffic. Similar to the no action alternative to the FERC proposed action, the no action alternative for the Coast Guard would avoid any project related environmental effects; however, it would also prevent LNG vessels from delivering LNG to an import terminal and the project objectives would not be met. Reasonable alternatives to the Coast Guard action of issuing a LOR with conditions include: 1) Issuance of a Coast Guard LOR finding the waterway suitable for LNG marine traffic without any conditions, and 2) postponing the issuance of a Coast Guard LOR pending further analysis and study.

Our analysis of systems alternatives included an evaluation of the use of 23 existing, authorized, or proposed onshore and offshore LNG facilities in the region to meet the objectives of the Creole Trail Project. Our conclusion was that none of the existing, approved, or proposed onshore LNG terminal facilities could handle the additional volumes proposed by Creole Trail without significant expansion and associated environmental impacts that would likely be similar to those that would result from the Creole Trail Project. We also concluded that, although offshore technologies provide an alternative means to import LNG, the existing and proposed offshore projects in the Gulf of Mexico would not provide the same capability as the proposed Creole Trail Project and would likely result in a similar or greater level of environmental impacts.

An alternative to the Coast Guard action of issuing a LOR which finds the waterway suitable for LNG vessel traffic with certain conditions is to issue a LOR without any conditions. This would avoid the environmental effects related to any moving safety and moored vessel security zones, or other related LNG safety and security activities, which the Coast Guard would determine is necessary prior to the commencement of LNG vessels transiting the waterway. If the Coast Guard postpones issuance of a LOR pending further analysis or study, the effect is expected to be similar to the FERC postponing its action. That is, although it is speculative to predict the resulting effects, postponing issuance of a LOR may lead to Creole Trail deciding to delay its entire project.

We also assessed regional and port alternatives, as well as individual site alternatives at multiple port locations, for the proposed LNG terminal. After analyzing each site against critical criteria and project objectives, we concluded that there are no practical alternative LNG terminal sites that meet the proposed project objectives and offer a clear environmental advantage over the proposed Creole Trail LNG terminal site. We also assessed potential alternative berth locations, LNG process areas, and LNG storage tank locations within the proposed site. No alternatives were identified as superior to the proposed locations.

Creole Trail is considering six DMPA site alternatives for possible use in meeting federal and state requirements for the beneficial use of material dredged during construction, mitigation of wetland impacts, and replacement of a portion of a DMPA within the proposed LNG terminal site that is currently used by the COE and would no longer be available if the project is constructed. As noted previously, a site referred to as "Area M" may be exchanged with a portion of the DMPA at the LNG terminal site as a result of recent legislation. Creole Trail is working with the appropriate agencies, officials, and landowners to select an appropriate DMPA(s) and develop an acceptable plan to satisfy these requirements. The selected DMPA(s) would be identified in Creole Trail's final ARMP.

With respect to pipeline alternatives, we concluded that there are no practicable system alternatives or design alternatives. Creole Trail evaluated a total of eight route alternatives for Segments 2 and 3 before selecting the proposed corridors within which it designed the preferred pipeline routes. We also evaluated nine route variations and minor relocations of six M&R stations. Creole Trail proposed these modifications in a supplemental filing to reduce impacts on sensitive resources, avoid buildings, reduce congestion near a residence, improve facility layouts, or reduce workspace requirements. We concluded that the proposed route variations and M&R station relocations were acceptable and would result in fewer or similar environmental impacts than the originally proposed locations. In conclusion, we have determined that the proposed project is the preferred alternative that can meet the project objectives.

PUBLIC INVOLVEMENT AND AREAS OF CONCERN

On January 26, 2005, Creole Trail filed a request with the FERC to implement the Commission's Pre-Filing Process for the Creole Trail Project. No formal application had been filed with the FERC at

that time. The FERC granted Creole Trail's request On March 18, 2005. On March 29, 2005, Creole Trail filed a letter describing modifications to the proposed Creole Trail pipeline system, including: a) the addition of a pipeline segment (referred to initially as the "Western Leg" and later referred to as "Segment 1") that would connect the originally proposed pipeline with the Sabine Pass LNG, L.P. Terminal.

Creole Trail filed its FERC application on May 23, 2005. On July 1, 2005, Creole Trail filed an amendment to its application in which it withdrew Segment 1 from the proposed pipeline system and reduced the maximum capacity of the proposed pipeline system accordingly. Creole Trail filed a supplement to its application on August 31, 2005 in which it proposed certain pipeline route modifications, updated reports and plans, and provided additional information that had been requested by the Commission and/or other regulatory agencies. On February 17, 2006, Creole Trail filed an application amendment withdrawing the Hackberry Lateral from the project. The Hackberry Lateral was a 6.8-mile-long, 24-inch-diameter pipeline that would have connected the Dominion Gas Storage site in Cameron Parish, Louisiana, to Segment 2 of the proposed pipeline.

On April 4, 2005, the FERC issued a *Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Creole Trail LNG and Pipeline Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings* (NOI). The NOI was sent to 924 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 terminal; and property owners along the proposed pipeline routes. We conducted public scoping meetings in Eunice, Sulphur, and Cameron, Louisiana on April 25, 26, and 27, 2005, respectively to provide an opportunity for the general public to learn more about the proposed project and to participate in our analysis by commenting on issues to be included in the EIS. A total of 25 people commented at the scoping meetings; the majority spoke in support of the project. We also received several written comments during the scoping period. On April 26, 2005, we conducted an aerial review of the project site by helicopter, and on April 27, 2005, we conducted a ground-based site visit, which was open to the public. We conducted another site visit, which was also open to the public, on July 26 and 27, 2005.

In addition to the public notice process discussed above, we conducted additional agency consultations to identify issues that should be addressed in the EIS. These consultations included interagency meetings conducted on April 28 and July 28, 2005. Issues discussed included the NEPA review process; federal and state permitting processes; route alternatives; impacts on wetlands, aquatic resources, EFH, threatened and endangered species, and commercial and recreational fishing; potential mitigation measures; beneficial use of dredged material; air quality; and safety and security planning processes.

The FERC prepared a draft EIS for the Creole Trail Project, and on December 16, 2005, issued a *Notice of Availability of the Draft Environmental Impact Statement for the Creole Trail LNG Terminal and Pipeline Project*. The draft EIS was filed with the EPA, and a formal notice was published in the Federal Register announcing that the draft EIS was available and had been mailed to individuals and organizations on the draft EIS mailing list for the project. In accordance with the Council on Environmental Quality (CEQ) regulations implementing NEPA, a public comment period was established, ending on February 21, 2006, to allow the public to comment on the draft EIS in the form of written comments. Because recent hurricane activities affected infrastructure in the project area and relatively few comments were received on the project during the scoping period, we did not hold public comment meetings on the draft EIS for the Creole Trail Project.

In addition to comments from cooperating federal agencies, we received comment letters from two federal agencies, two state agencies, one local agency, one individual, and the applicant. Comments on the draft EIS and our responses to those comments are provided in Appendix M of this document. As

noted previously, all substantive changes in this final EIS are indicated by vertical bars that appear in the margins. These changes were made in response to comments received on the draft EIS and as a result of updated information that became available after issuance of the draft EIS.

This final EIS was mailed to the agencies, individuals, and organizations on the mailing list included in Appendix A, and was filed with the EPA for formal notice of availability. In accordance with the CEQ regulations implementing NEPA, no agency decision on a proposed action may be made until 30 days after the EPA publishes a notice of availability of the final EIS. However, the CEQ regulations provide an exception to this rule when an agency decision is subject to a formal internal process that allows other agencies or the public to make their views known. In such cases, the agency decision may be made at the same time as the notice of the final EIS is published, allowing both periods to run concurrently. Should the Commission authorize the proposed project, it would be subject to a 30-day rehearing period. Therefore, the Commission could issue its decision concurrently with the EPA's notice of availability.

MAJOR CONCLUSION

We conclude that, with the use of Creole Trail'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 proposed project. We believe these measures would substantially reduce the environmental impact of the project. The primary reasons for our decision are:

- the LNG terminal facility would make use of a site previously used for a dredge material placement area;
- the LNG terminal facility would be located in a remote area with access to a deep water federal navigation channel;
- materials to be dredged from the marine basin and tugboat dock areas would be put to beneficial use;
- Creole Trail would implement the FERC staff's Plan and Procedures to mitigate impacts on soils, wetlands, and waterbodies;
- Creole Trail would implement an approved ARMP to minimize and mitigate for impacts on wetlands, EFH, and oyster fisheries;
- Creole Trail has routed the pipeline to avoid placement of the construction work areas near most residences and would implement site-specific mitigation where construction work areas are within 25 feet of any residences;
- appropriate consultations with the COE, FWS, NOAA Fisheries, the SHPO, and the Coastal Management Division of the LADNR would be completed before Creole Trail would be allowed to begin construction;
- appropriate safety features would be incorporated into the design and operation of the LNG import terminal and LNG vessels;

- operational controls would be imposed by the local pilots and Coast Guard to direct the movement of LNG ships, and the security provisions to deter attacks by potential terrorists; and
- an environmental inspection and mitigation monitoring program would be implemented to ensure compliance with all mitigation measures that become conditions of any FERC authorization.