

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;  
Nora Mead Brownell, and Suedeen G. Kelly.

Sabine Pass LNG, L.P.

Docket No. CP05-396-000

ORDER GRANTING AUTHORITY UNDER SECTION 3 OF  
THE NATURAL GAS ACT

(Issued June 15, 2006)

1. On July 29, 2005, Sabine Pass LNG, L.P. (Sabine LNG) filed an application under section 3 of the Natural Gas Act (NGA) to site, construct and operate additional liquefied natural gas (LNG) import facilities to be located in Cameron Parish, Louisiana. In this order, the Commission finds that the requested authorizations are not inconsistent with the public interest, subject to the conditions discussed herein.

**Background**

2. On December 21, 2004, the Commission issued an order authorizing Sabine LNG<sup>1</sup> to site, construct and operate a new LNG import terminal in Cameron Parish, Louisiana consisting of a ship turning basin and two protected ship berths, three LNG storage tanks

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<sup>1</sup> Sabine LNG is a limited partner of Cheniere LNG, Inc. (Cheniere LNG), which in turn, is a wholly-owned subsidiary of Cheniere Energy, Inc. Cheniere LNG has a 30 percent limited partnership interest in Freeport LNG Development, L.P. and a 100 percent ownership interest in Corpus Christi LNG, L.P., both of which have obtained authorizations from the Commission to site, construct and operate LNG import facilities in Texas. In addition, Cheniere LNG has a 100 percent interest in Creole Trail LNG, L.P., which has a pending application at the Commission to site, construct and operate an LNG import terminal in Louisiana.

and associated vaporization facilities (Phase 1 Project).<sup>2</sup> In that order, the Commission also authorized an affiliate, Cheniere Sabine Pass Pipeline Company (Cheniere Sabine Pipeline)<sup>3</sup>, to construct own and operate a 16-mile pipeline connecting the LNG terminal to the pipeline's terminus at Johnson's Bayou and to offer open access transportation services on its pipeline under Part 284 of the Commission's regulations. Sabine LNG states that construction of its Phase 1 Project has commenced.

### **Sabine LNG's Phase 2 Proposal**

3. In the instant application, Sabine LNG seeks to construct and operate additional facilities at the site of its Phase 1 Project in Cameron Parish, Louisiana. The Phase 2 Project includes three additional LNG storage tanks as well as new and expanded vaporizations systems that would increase the LNG import terminal's planned average send-out capacity from 2.6 billion cubic feet per day (Bcf/d) to 4 Bcf/d.

4. Specifically, Sabine LNG seeks authority to construct and operate:

- three 160,000 m<sup>3</sup> single containment LNG storage tanks;
- sixteen Ambient Air Vaporization (AAV) Trains, each with a high-pressure sendout pump;
- eight Submerged Combustion Vaporization (SCV) Trains, each with a high-pressure sendout pump;
- one Pilot AAV Train;
- two additional parallel stainless steel LNG transfer lines;
- two 50 percent boil off gas (BOG) compressors;
- two additional BOG condensing systems;
- four shell-and-tube heat exchangers;
- two vapor return blowers;
- one 27 megawatt simple-cycle gas turbine generator; and
- two 30-inch sendout pipelines to new main meters.

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<sup>2</sup> *Sabine Pass LNG, L.P., et al.*, 109 FERC ¶ 61,324 (2004).

<sup>3</sup> By letter dated March 23, 2006, as amended on April 28, 2006, Cheniere Sabine Pipeline informed the Commission that on March 31, 2006, Cheniere Sabine Pipeline was merged under Delaware law into SPPC, with SPPC as the surviving legal entity. References to the pipeline in the remaining parts of the order will use the name of the new legal entity.

The Sabine LNG Phase 2 facilities are proposed to be adjacent to or within the boundary of the Phase 1 site.

5. Sabine LNG states that regasified LNG will be sent out from the LNG terminal through SPPC that was authorized with a capacity of 2.6 Bcf/d. Sabine LNG explains that two of the three customers who have contracted for capacity in the Phase 1 Project, Total LNG USA, Inc. (Total LNG) and Chevron U.S.A. (Chevron), each with a capacity reservation of 1 Bcf/d, have stated their intent not to utilize the SPPC system to transport their revaporized LNG from the terminal.<sup>4</sup> Rather, Sabine LNG states, Total LNG and Chevron have indicated that they will construct or cause to be constructed other take-away pipeline facilities. Sabine LNG states that Total LNG and Chevron have executed binding precedent agreements for 100 percent of the capacity of the project proposed by Kinder Morgan Energy Partners, L.P. (KM Louisiana Pipeline) that will provide up to 3.4 Bcf/d of take away capacity from Sabine LNG.<sup>5</sup> Moreover, Sabine LNG maintains that, if required, SPPC would have the capability on an engineering basis to transport the combined Phase 1 and Phase 2 volumes of 4 Bcf/d and SPPC would seek to amend its certificate authorizations to increase the capacity of the pipeline if required by actual market demand.<sup>6</sup> Sabine LNG also identifies over 4 Bcf/d of existing take away capacity from the terminal through potential interconnects with downstream pipelines, as well as additional pipeline projects that have been proposed by KM Louisiana Pipeline and Sempra Energy (Port Arthur Pipeline), which combined have the potential to provide an additional 2.5 Bcf/d or more of take-away capacity.<sup>7</sup>

6. Sabine LNG asserts that approval of its requested authorization will foster the development of new infrastructure facilities needed to enable significant additional volumes of imported natural gas to reach gas consumers in the United States. Moreover, Sabine LNG states that it will bolster the growing LNG trade between the United States and nations with abundant supplies of natural gas.

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<sup>4</sup> Cheniere Resources, Inc., an affiliate of Sabine LNG, contracted for the entire 2.6 Bcf of capacity in SPPC during the open season.

<sup>5</sup> See Sabine LNG's January 31, 2006 response to a Commission Staff data request, Question No. 1. Also see Kinder Morgan Louisiana Pipeline, LLC, Docket No. PF06-16-000 initiated on February 17, 2006.

<sup>6</sup> See Sabine LNG's January 31, 2006 response to a Commission Staff data request, Question No. 1.

<sup>7</sup> *Id.*

7. Sabine LNG requests that this authorization be granted as expeditiously as possible so that certain critical facilities may be constructed and placed in service for the 2008 heating season, and all facilities can be in service no later than the 2010 heating season.

### **Notice, Interventions, Comments and Protest**

8. Notice of Sabine LNG's application was published in the *Federal Register* on August 19, 2005 (70 Fed. Reg. 48695). A number of timely, unopposed interventions were filed.<sup>8</sup> Timely, unopposed motions to intervene are granted by operation of Rule 214 of the Commission's Rules of Practice and Procedure.<sup>9</sup>

9. Total LNG filed a late motion to intervene. The Commission finds that granting this late-filed motion to intervene at this early date will not delay, disrupt, or otherwise prejudice this proceeding, or place an additional burden on existing parties. Therefore, for good cause shown, we will grant the late-filed motion to intervene.<sup>10</sup>

10. AGA filed comments stating that it believes that imported LNG is a critical component of the future natural gas supply mix for gas consumers and the construction of additional LNG terminals is essential to achieve the necessary increase in LNG imports. It maintains that the issue of the interchangeability of natural gas should not be an obstacle to the development of LNG terminals as long as the Commission addresses the interchangeability requirements as part of its review of an applicant's proposal. To that end, AGA requests that the Commission explore with the applicant its intentions to incorporate the recommendations of the industry *White Paper on Natural Gas Interchangeability and Non-Combustion End Use* submitted to the Commission in Docket No. PL04-3-000. Specifically, AGA requests that the Commission explore: (1) whether modifications or additions to the tariffs of the interconnected interstate pipelines are necessary relative to the deliveries of LNG; and (2) the potential sources of LNG and the gas quality specifications of those sources to determine if any additional processing facilities would be necessary to accommodate those sources of LNG.

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<sup>8</sup> Motions to intervene were filed by the following parties: ExxonMobil Gas & Power Marketing Company, Columbia Gulf Transmission Company, Natural Gas Pipeline Company of America, the American Gas Association (AGA) and Chevron.

<sup>9</sup> 18 C.F.R. § 385.214(a)(3) (2005).

<sup>10</sup> 18 C.F.R. § 385.214(d) (2005).

11. Regarding AGA's concerns, we note that concurrently with this order, the Commission is issuing its *Policy Statement on Provisions Governing Natural Gas Quality and Interchangeability in Interstate Natural Gas Company Tariffs* in Docket No. PL04-3-000. Consistent with the Policy Statement, Sabine LNG must ensure that the regasified LNG it delivers to interconnecting pipelines meets the gas quality and interchangeability requirements of the interconnecting pipelines' tariffs. To the extent AGA seeks modifications to the tariff of an interconnecting pipeline, it should file a complaint demonstrating that the specific pipeline tariff is not just and reasonable. The Commission will evaluate the complaint on its specific merits.

## **Discussion**

### **Section 3 Authorization**

12. Because the proposed LNG terminal facilities will be used to import gas from foreign countries, the construction and operation of the facilities and site of their location require approval by the Commission under section 3 of the NGA.<sup>11</sup> The Commission's authority over facilities constructed and operated under section 3 includes the authority to apply terms and conditions as necessary and appropriate to ensure that the proposed construction and siting is in the public interest.<sup>12</sup> Section 3 provides that the Commission "shall issue such order on application..." if it finds that the proposal "will not be inconsistent with the public interest."

13. In recent years, the Commission has chosen to exercise a less intrusive degree of regulation for LNG import terminals, and has not required the applicant to offer open-

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<sup>11</sup> The regulatory functions of section 3 were transferred to the Secretary of Energy in 1977 pursuant to section 301(b) of the Department of Energy Organization Act (Pub. L. No. 95-91, 42 U.S.C. §§7101 *et seq.*). In reference to regulating the imports or exports of natural gas, the Secretary subsequently delegated to the Commission the authority to approve or disapprove the construction and operation of particular facilities, the site at which facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry or exit for exports. DOE Delegation Order No. 00-044.00, 67 *Fed. Reg.* 8,946 (2002). Accordingly, applications for authority to import natural gas must be submitted to the Department of Energy. The Commission does not authorize importation of the commodity itself.

<sup>12</sup> *Distrigas Corporation v. FPC*, 495 F.2d 1057, 1063-64 (D.C. Cir. 1974), *cert. denied*, 419 U.S. 834 (1974); *Dynegy LNG Production Terminal, L.P.*, 97 FERC ¶ 61,231 (2001).

access service or to maintain a tariff or rate schedules for its terminalling service.<sup>13</sup> On August 8, 2005, the Energy Policy Act of 2005 (EPAcT 2005) was signed into law.<sup>14</sup> Section 311 of EPAcT 2005 amends section 3 of the NGA regarding the Commission's authority over the siting, construction, expansion or operation of an LNG terminal.<sup>15</sup> As pertinent here, section 311(c) of EPAcT 2005 adds a new NGA section 3(e)(3) providing that, before January 1, 2015, the Commission shall not condition an order approving an application to site, construct, expand or operate an LNG terminal: (1) on a requirement that the LNG terminal offer service to customers other than the applicant, or any affiliate of the applicant securing the order; (2) any regulation of the rates, charges, terms or conditions of service of the LNG terminal; or (3) a requirement to file schedules or contracts related to the rates charges, terms or conditions of service of the LNG terminal. Our authorization here is consistent with new NGA section 3(e)(3).

14. The Commission recognizes the important role that LNG will play in meeting future demand for natural gas in the United States and has noted that the public interest is served through encouraging gas-on-gas competition by introducing new imported supplies.<sup>16</sup> The record in this case shows that the Sabine LNG terminal will provide such additional supplies of natural gas to consumers. Additionally, because the project will provide incremental capacity at market-based rates, the economic risks of the proposed Phase 2 Project will be borne by Sabine LNG. Therefore, we find that, subject to the conditions imposed in this order, the Sabine LNG Phase 2 Project is not inconsistent with the public interest.

### **Environmental Analysis**

15. On September 14, 2005, we issued a Notice of Intent to Prepare an Environmental Assessment for the Proposed Sabine LNG Phase 2 Project and Request for Comments on Environmental Issues (NOI). We received responses to the NOI from the U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Habitat Conservation Division, the U.S. Fish and Wildlife Service (FWS), the U.S. Army Corps of Engineers (COE), Louisiana Department of

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<sup>13</sup> See *Hackberry LNG Terminal, L.L.C.*, 101 FERC ¶ 61,294 (2002), *order issuing certificates and granting reh'g*, 104 FERC ¶ 61,269 (2003).

<sup>14</sup> Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005).

<sup>15</sup> Energy Policy Act of 2005, Pub. L. No. 109-58, § 311, 119 Stat. 594 (2005).

<sup>16</sup> *Hackberry LNG*, 101 FERC ¶ 61,294 at P 26 (2002).

Wildlife and Fisheries, and the U. S. Coast Guard (Coast Guard). We also received comments from state and local representatives in support of the project. Our staff addressed all substantive comments in the environmental assessment for Sabine LNG's proposal. The EA addresses geology and soils, land use, water resources, fisheries, and wetlands, cultural resources, vegetation and wildlife, air quality and noise, endangered and threatened species, hazardous waste, cumulative impacts, and reliability and public safety.

16. The Coast Guard cooperated in the preparation of the EA and plays an important role with regard to maritime issues. With regard to vessel transit to and from the Sabine LNG terminal, the Coast Guard has identified no constraints. Further, at this time no outstanding safety and security issues have been identified.

17. The Coast Guard issued, on June 14, 2005, a Navigation and Vessel Inspection Circular – Guidance on Assessing the Suitability of a Waterway for Liquefied Natural Gas (LNG) Marine Traffic (NVIC 05-05). The purpose of this NVIC 05-05 is to provide Coast Guard Captains of the Port (COTP)/Federal Maritime Security Coordinators (FMSC), members of the LNG industry, and port stakeholders with guidance on assessing the suitability and security of a waterway for LNG marine traffic. It provides specific guidance on the timing and scope of the waterway suitability assessment (WSA), which will address both safety and security of the port, the facility, and the vessels transporting the LNG.

18. The WSA process addresses the transportation of LNG from an LNG tanker's entrance into U.S. territorial waters, through its transit to and from the LNG receiving facility, and includes operations at the vessel/facility interface. In addition, the WSA addresses the navigational safety issues and port security issues introduced by the proposed LNG operations. The Coast Guard's letter to FERC on the WSA identifies the relevant safety and security issues from the broad viewpoint of impact on the entire port, as well as provides a detailed review of specific points of concern along the LNG tanker's proposed transit route. The WSA will be reviewed on an annual basis and updated as needed until the facility is placed in service.

19. On August 15, 2005, Sabine LNG submitted a WSA for the proposed project to the Captain of the Port for Coast Guard Marine Safety Unit Port Arthur. The Coast Guard, with input from various stakeholders, which included the marine pilots, towing industry representatives, members of the Area Harbor Safety Committee, and the Area Maritime Security Committee, has completed a review of Sabine LNG's WSA in accordance with the guidance in 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.

20. On March 7, 2006, the Coast Guard sent a letter to FERC, based on the above WSA review, providing input on the capability of the port community to implement the risk management measures necessary to responsibly manage the risks of LNG marine traffic in the port. As described in this document, the Coast Guard has preliminarily determined that the Sabine Pass Channel to the proposed LNG terminal in Cameron Parish, Louisiana may be suitable for accommodating the type and frequency of LNG vessels being proposed by the applicant. This determination, however, is preliminary because the required NEPA analysis has not yet been completed. This determination is also 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. Once these plans are finalized and the resources required to implement them have been identified, Sabine LNG will be able to more specifically discuss the funding of such resources. In order to better define how the potential burden on local communities would be addressed, the final EA recommended that Sabine LNG provide a plan that identifies the mechanisms for funding project-specific security/emergency management costs that would be imposed on state agencies and local communities. We agree with that recommendation.

21. The Coast Guard's letter to FERC discusses the relevant safety and security issues from the broad viewpoint of impact on the entire port, as well as provides a detailed review of specific points of concern along the LNG tanker's proposed transit route. A detailed supplemental letter, also based on the WSA review, describing the conceptual prevention/mitigation strategies, along with resource needs, has also been sent from the Coast Guard to the FERC on March 8, 2006. If the Coast Guard issues a Letter of Recommendation finding the waterway suitable for LNG marine traffic, the security measures outlined in the letters to FERC will be further developed into a detailed *Liquefied Natural Gas Vessel Management and Emergency Plan*, which would become the basis for appropriate security measures for each Maritime Security threat level. This plan would clearly spell out roles, responsibilities and specific procedures for an LNG vessel transiting the Sabine Pass Channel up to the Sabine LNG terminal, as well as for all agencies involved in implementing security and safety during the operation. It would be required that, prior to the LNG vessel being granted permission to enter the Sabine Pass Channel, both the vessel and facility must be in full compliance with the appropriate requirements of the Maritime Transportation Security Act and International Ship and Port Facility Security Code, and the security protocols to be established by the COTP in the *Liquefied Natural Gas Vessel Management and Emergency Plan*. The plan may include security measures such as: Coast Guard and other law enforcement agency vessels to enforce safety and security zones around the LNG vessels while in transit and moored at the terminal; shoreside surveillance and monitoring along designated sections of the transit route; and other prevention/mitigation strategies.

22. The *Liquefied Natural Gas Vessel Management and Emergency Plan* would be a dynamic document that would be prepared well before import operations would commence, and the port's overall security picture may change over that time period. New port activities may commence, infrastructure may be added, or population density may change. Improvements in technology to detect, deter and defend against intentional acts may also develop. Therefore, the final EA recommended that Sabine LNG annually review its waterway suitability assessment relating to LNG vessel traffic for the project; update the assessment to reflect changing conditions which may impact the suitability of the waterway for LNG marine traffic; provide the updated assessment to the cognizant COTP/Federal Maritime Security Coordinator (COTP/FMSC) for review and validation and if appropriate, further action by the COTP/FMSC relating to LNG vessel traffic; and provide a copy to FERC staff. We concur with this recommendation.

23. The EA evaluated the safety of both the proposed Phase 2 Project and the related LNG vessel transit through the Sabine-Neches Waterway. The analysis identified the principal properties and hazards associated with LNG, presented a summary of the design and technical review of the cryogenic aspects of the LNG terminal, discussed the types of storage and retention systems, analyzed the thermal radiation and flammable vapor cloud hazards resulting from credible LNG spills, analyzed the safety aspects of LNG transportation by ship, and reviewed issues related to security and terrorism. Requirements for safety of the terminal are in the Coast Guard regulations in 33 CFR Part 127 and for maintaining security are in 33 CFR Part 105 and will be approved by the Captain of the Port.

24. With respect to the onshore facility, a cryogenic design and technical review of the proposed terminal design and safety systems was completed and reported in the EA. That review noted several areas of concern, and as a result, the EA recommends 54 Environmental Conditions to make certain modifications to the terminal design. Information pertaining to these modifications is to be filed for review and approval by the Director of OEP 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. The EA also evaluated the thermal radiation and flammable vapor dispersion exclusion zones of the proposed LNG terminal. The analysis found that no excluded uses are within these areas.

25. In addition, the EA discussed the Department of Energy's (DOE) study by Sandia National Laboratories entitled, *Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water (Sandia Report) December 2004*. The report evaluated an LNG cargo tank breach using modern finite element modeling and explosive shock physics modeling to estimate a range of breach sizes for credible accidental and intentional LNG spill events. Based on the Sandia Report breach sizes, thermal radiation and flammable vapor hazard distances were calculated in the EA for an

accident or an attack on an LNG vessel. For the nominal intentional breach scenarios (5- to 7-square-meter holes in an LNG cargo tank), the estimated distances ranged from: 4,182 to 4,652 feet for a thermal radiation of 1,600 Btu/ft<sup>2</sup>-hr, the level which is hazardous for persons located outdoors and unprotected; 3,232 to 3,591 feet for 3,000 Btu/ft<sup>2</sup>-hr, an acceptable level for wooden structures; and 1,934 to 2,143 feet for 10,000 Btu/ft<sup>2</sup>-hr, a level sufficient to damage process equipment, for these size holes respectively.

26. 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, 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 EA determined that the risk to the public from accidental causes is negligible.

27. 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 a new LNG import terminal proposal having a large volume of energy transported and stored near populated areas, the perceived threat of a terrorist attack is a serious concern of the local population and requires that resources be directed to mitigate possible attack paths. If the Coast Guard issues a Letter of Recommendation finding the waterway suitable for LNG marine traffic, the operational restrictions that would be imposed by the Sabine Pilots on LNG vessel movements through this area, as well as the requirements that the Coast Guard would impose, would minimize the possibility of a hazardous event occurring along the vessel transit area. While the risks associated with the transportation of any hazardous cargo can never be entirely eliminated, we are confident that they can be reduced to minimal levels and that the public will be well protected from harm.

28. Based on the discussion in the EA, we conclude that if the proposed facilities are constructed or operated in accordance with Sabine LNG's application and supplements, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment.

29. Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of this authorization. The Commission encourages cooperation between interstate pipelines and local authorities. However, this does not mean that state and local agencies, through application of state or

local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by this Commission.<sup>17</sup>

30. Sabine Pass LNG shall notify the Commission's environmental staff by telephone or facsimile of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies Sabine Pass LNG. Sabine Pass LNG shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

### **Conclusion**

31. For the reasons set forth herein, and subject to the conditions set forth below, we find that Phase 2 of Sabine LNG's import terminal is not inconsistent with the public interest under NGA section 3. Thus, we grant the requested authorizations to Sabine LNG.

32. At a hearing held on June 15, 2006, the Commission on its own motion received and made a part of the record in this proceeding all evidence, including the application and exhibits thereto, submitted in support of the authorizations sought herein, and upon consideration of the record,

### **The Commission orders:**

(A) In Docket No. CP05-396-000, Sabine LNG is hereby authorized under section 3 of the NGA to site, construct, and operate additional facilities at its LNG terminal in Cameron Parish, Louisiana, as more fully described in this order and in the application.

(B) Sabine LNG shall comply with the environmental conditions contained in the Appendix to this order.

(C) Sabine LNG shall notify the Commission's environmental staff by telephone or facsimile of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies Sabine LNG. Sabine

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<sup>17</sup> See, e.g., *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293 (1988); *National Fuel Gas Supply v. Public Service Commission*, 894 F.2d 571 (2d Cir. 1990); and *Iroquois Gas Transmission System, L.P., et al.*, 52 FERC ¶ 61,091 (1990) and 59 FERC ¶ 61,094 (1992).

LNG shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

(D) The untimely motion to intervene of Total LNG is granted.

By the Commission.

( S E A L )

Magalie R. Salas,  
Secretary.

## APPENDIX

### Environmental Conditions for the Sabine LNG Phase 2 Project

1. Sabine LNG shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Sabine LNG must:
  - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
  - b. justify each modification relative to site-specific conditions;
  - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
  - d. receive approval in writing from the Director of the Office of Energy Project (OEP) **before using that modification.**
2. For liquefied natural gas (LNG) facilities, the Director of OEP has delegated authority to take all steps necessary to ensure the protection of life, health, property, and the environment during construction and operation of the Project. This authority shall include:
  - a. stop work authority and authority to cease operation; and
  - b. the design and implementation of any additional measures deemed necessary to assure continued compliance with the intent of the conditions of the Order.
3. **Prior to any construction**, Sabine LNG 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.
4. The authorized facility locations shall be as shown in the EA. **As soon as they are available, and before the start of construction**, Sabine LNG shall file with the Secretary any revised detailed maps/sheets and aerial photographs at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or

site-specific clearances must be written and must reference locations designated on these detailed maps/sheets and aerial photographs.

5. Sabine LNG shall file with the Secretary detailed maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all facility relocations, staging areas, 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.
6. **At least 60 days before the start of construction**, Sabine LNG shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Sabine LNG will implement the mitigation measures required by the Order. Sabine LNG must file revisions to the plan as schedules change. The plan shall identify:
  - a. how Sabine LNG 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 onsite construction and inspection personnel;
  - b. the number of environmental inspectors assigned to the project, 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 Sabine LNG 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 specific portion of Sabine LNG' organization having responsibility for compliance;
  - f. the procedures (including use of contract penalties) Sabine LNG will follow if noncompliance occurs; and
  - g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

- i. the completion of all required surveys and reports;
  - ii. the mitigation training of onsite personnel;
  - iii. the start of construction; and
  - iv. the start and completion of restoration.
7. The environmental complaint resolution procedure established for the Sabine LNG Phase 1 Project shall be used for this Project.
8. Sabine LNG shall employ an environmental inspector. The environmental inspector shall be:
  - a. responsible for monitoring and ensuring compliance with all mitigation measures required by the 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 the Order, and any other authorizing document;
  - d. a full-time position, separate from all other activity inspectors;
  - e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
  - f. responsible for maintaining status reports.
9. Sabine LNG shall file updated status reports prepared by the environmental inspector with the Secretary **on a weekly basis until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
  - a. the current construction status of the 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 inspector(s) 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 the Order, and the measures taken to satisfy their concerns; and
  - f. copies of any correspondence received by Sabine LNG from other federal, state or local permitting agencies concerning instances of noncompliance, and Sabine LNG' response.
10. Sabine LNG shall 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 areas affected by the Project are proceeding satisfactorily.
11. **Within 30 days of placing the authorized facilities in service**, Sabine LNG 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 conditions Sabine LNG 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.
12. Sabine LNG shall commit to implementing the U.S. Fish and Wildlife Service (FWS) guidelines, "Service Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation and Decommissioning", as they would apply to the LNG storage tanks and Ambient Air Vaporization Trains (AAV Trains), to limiting the intensity and number of lights on these structures to that required for security and operations, and to maintain these structures in a non-reflective state.
13. Sabine LNG **shall not begin construction** of any facilities associated with the Project **until** it files a copy of the Coastal Zone Management Plan (CZMP) consistency determination issued by the Louisiana Department of Natural Resources (LDNR) with the Secretary.

14. When the Sabine Pass Battleground State Park is open to camping, Sabine LNG shall limit pile driving activities to daytime, weekday hours only. Should weekend and/or 24 hour pile driving be required to meet the construction schedule, Sabine LNG shall conduct a noise survey at the Sabine Pass Battleground State Park to establish actual noise levels during pile driving activities. If the actual noise levels during pile driving activities exceed ambient nighttime noise levels, then Sabine LNG shall develop a noise mitigation plan to reduce noise levels during the weekend and/or nighttime period and document that the noise mitigation plan effectively reduces noise from construction pile driving activities. The noise survey, noise mitigation plan, and documentation shall be filed with the Secretary, for review and written approval by the Director of OEP, **prior to the initiation of any weekend or nighttime pile driving activities.**
15. Sabine LNG shall file a noise survey with the Secretary **no later than 60 days after placing the Phase 2 facilities into service.** If the noise attributable to the operation of the LNG terminal exceeds a day-night sound level ( $L_{dn}$ ) of 55 dBA at any nearby noise sensitive area (NSA), Sabine LNG shall file a report on what changes are needed and shall install additional noise controls to meet that level within 1 year of the in-service date. Sabine LNG shall confirm compliance with this requirement by filing a second noise survey with the Secretary **no later than 60 days after it installs the additional noise controls.**

The following measures shall apply to the LNG terminal design and construction details. **Information pertaining to these specific recommendations 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.** Items relating to Resource Report 13-Engineering and Design Material and security should be submitted as critical energy infrastructure information (CEII) pursuant to 18 Code of Federal Regulations (CFR) § 388.112 and PL01-1. Information pertaining to items such as: offsite emergency response; procedures for public notification and evacuation; and construction and operating reporting requirements would be subject to public disclosure. This information should be submitted a minimum of 30 days before approval to proceed is required.

16. 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.

17. Sabine LNG shall provide a technical review of its proposed facility design that:
- a. Identifies all combustion/ventilation air intake equipment and the distances to any possible hydrocarbon release (LNG, flammable refrigerants, flammable liquids and flammable gases).
  - b. Demonstrates that these areas are adequately covered by hazard detection devices and indicates how these devices would isolate or shutdown any combustion equipment whose continued operation could add to or sustain an emergency.

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

18. A complete plan and list of the fixed and wheeled dry-chemical, fire extinguishing, and 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.
19. Facility plans showing the proposed location of, and area covered by, each monitor, hydrant, deluge system, hose and sprinkler, as well as piping and instrumentation diagrams, of the fire water system shall be filed **prior to initial site preparation.**
20. A copy of the hazard design review and list of recommendations that are to be incorporated in the final facility design shall be provided **prior to initial site preparation.**
21. Procedures shall be developed for offsite contractors' responsibilities, restrictions, limitations, and supervision of these contractors by Sabine LNG staff **prior to initial site preparation.**
22. The **final design** shall include layout provisions to install equipment that may be required to be installed to disperse fog generated by the proposed ambient vaporizers.
23. The **final design** shall provide a foghorn alarm system to alert marine traffic to fog on the waterway that may be generated by the ambient vaporizer system.
24. The **final design** shall include spill and leak detection in the jetty isolation valve area.
25. The **final design** of the hazard detection equipment shall identify manufacturer

and model.

26. The **final design** shall specify that all hazard detectors be installed with redundancy, fault detection and fault alarm monitoring.
27. The **final design** of the hazard detection equipment shall provide flammable gas and UV/IR hazard detectors with local instrument status indication as an additional safety feature.
28. The **final design** of the fixed and wheeled dry-chemical, fire extinguishing and high expansion foam hazard control equipment shall identify manufacturer and model.
29. The **final design** shall include a spectacle blind in the vapor return line, between the vapor block valve and the connection to the LNG unloading line of the dual service unloading arm, on each platform.
30. The **final design** shall include details of the LNG flow measurement system provided for the top and bottom fill to each tank.
31. The **final design** shall include a discretionary vent for each tank, to be operated through the distributed control system (DCS).
32. The **final design** shall include provisions to flare all low pressure boil-off and flash gas.
33. The **final design** shall include drawings and specifications of the spill protection system to be applied to the LNG tank roof and outer shell.
34. The **final design** shall include details of the storage tank piping support structure.
35. 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.
36. The **final design** shall include a cool down bypass valve round the discharge control valve of each in-tank pump.
37. The **final design** shall include a recycle line from the end of the LNG sendout pump suction header to storage. The line shall be sized to allow the boil-off gas (BOG) condenser and suction header to be stabilized prior to pump cool down.
38. The **final design** shall specify that at the maximum LNG specific gravity, specified for the design of the system and at full LNG tank conditions and

- maximum BOG condenser operating pressure, the discharge pressure of the LNG sendout pumps shall not exceed 90 percent of the LNG vaporizer design pressure.
39. The **final design** shall include installation of a check valve down stream of the minimum flow recycle line in the secondary pump discharge piping.
  40. The **final design** shall include automatic shutoff isolation valves for the suction and discharge of the return blowers.
  41. The **final design** shall include provisions to install temporary high pressure boil-off compression in the event that sendout operation is curtailed, or ceased, for a period in excess of thirty days. Details shall include plans and drawings of the BOG recovery system and specifications of the equipment and compressors to be installed.
  42. The **final design** shall include details of the proposed installation of the liquid removal systems associated with the operation of the BOG compressor KO drum V-103 and liquid drain pot V-104.
  43. The **final design** shall include provisions to alarm the condition of high liquid level in the drip leg and prevent the return blowers from operating in the event of a High-High level.
  44. The **final design** shall include provisions to pipe unloading line relief valves and other LNG reliefs and vents directly to storage, or to an intermediate vent vessel.
  45. The **final design** shall include an LNG sample vaporization system.
  46. The **final design** shall include a fire protection evaluation carried out in accordance with the requirements of National Fire Protection Association (NFPA) 59A, Chapter 9.1.2.
  47. The **final design** shall include details of the shut-down logic, including cause and effect matrices for alarms and shutdowns.
  48. 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.
  49. The **final design** shall include details of the air gaps to be installed downstream of all seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system. Each air gap shall vent to a safe location and be equipped with a leak detection device that: shall continuously

monitor for the presence of a flammable fluid; shall alarm the hazardous condition; and shall shutdown the appropriate systems.

50. The **final design** shall include a hazard and operability (HAZOP) review of the completed design. A copy of the review and a list of the recommendations shall be provided.
51. All valves including drain, vent, instrument root, main and car sealed valves shall be tagged in the field **during construction and prior to commissioning**.
52. Copies of the Coast Guard security plan and vessel operating plan shall be filed **prior to commissioning**.
53. Operation and Maintenance procedures and manuals, as well as safety procedure manuals, shall be filed **prior to commissioning**.
54. The contingency plan for failure of the LNG tank outer shell shall be filed prior to commissioning.
55. 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**.
56. 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**.
57. 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**.

In addition, we recommend that the following measures shall apply **throughout the life of the facility**:

58. 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, the Company shall respond to a specific data request including information relating to possible design and operating conditions that may have been imposed by other agencies or organizations. Up-to-date detailed piping and instrumentation diagrams reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below, including

facility events that have taken place since the previously submitted semi-annual report, shall be submitted.

59. **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 thereof), 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 will provide the FERC staff with early notice of anticipated future construction/maintenance projects at the LNG facility.
60. In the event the temperature of any region of any outer tank shell, including 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.
61. Significant non-scheduled events, including safety-related incidents (i.e., LNG or natural gas releases, fires, explosions, mechanical failures, unusual over pressurization, and major injuries) and security related incidents (i.e., attempts to enter site, suspicious activities) shall be reported to FERC staff. In the event an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made immediately, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. In all instances, notification should be made to FERC staff **within 24 hours**. This notification practice shall be incorporated into the LNG facility's emergency plan. Examples of reportable LNG-related incidents include:
  - a. fire;

- b. explosion;
- c. estimated property damage of \$50,000 or more;
- d. death or personal injury necessitating in-patient hospitalization;
- e. free flow of LNG for five minutes or more that results in pooling;
- f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability, structural integrity, or reliability of an LNG facility that contains, controls, or processes gas or LNG;
- g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes gas or LNG;
- h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes gas, or LNG, to rise above its maximum allowable operating pressure (or working pressure for LNG facilities) plus the build-up allowed for operation of pressure limiting or control devices;
- i. a leak in an LNG facility that contains or processes gas or LNG that constitutes an emergency;
- j. inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank;
- k. any 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 reoccurrence of the incident.

62. **Prior to installation** of the full-scale ambient air vaporizer system, Sabine LNG shall file with the Secretary for review and written approval by the Director of OEP, the following:
- a. a report on the results of the single ambient air vaporizer train field test which addresses any reliability or operability problems encountered and which evaluates the accuracy of the near- and far-field fog studies;
  - b. the final design of the ambient air vaporizer system and equipment that may be required to disperse fog as a result of the operation of the test train and validation of the near- and far-field fog studies; and
  - c. mitigation and operating procedures proposed to address public and operator safety, near- and far-field fog impacts, and the facility's reliability and operability.
63. Sabine LNG shall reevaluate the LNG storage tank impoundment design to ensure that the impoundment provides a volumetric capacity of 110 percent of the LNG tank's maximum liquid capacity. This information shall be filed with the Secretary for review and written approval by the Director of OEP **prior to initial site preparation**.
64. Sabine LNG shall provide a revised ambient air vaporizer sump design which demonstrates that:
- a. the sump is adequately sized for all spills which would potentially drain to the sump; and
  - b. the continuous presence of defrost water in the sump would not decrease the required spill containment volume.
- The revised design shall be filed with **the** Secretary for review and written approval by the Director of OEP **prior to initial site preparation**.
65. Sabine LNG 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. Sabine LNG 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.
66. **Prior to commissioning**, Sabine LNG shall coordinate, as needed, with the Coast

Guard to define the responsibilities of Sabine LNG security staff in supplementing other security personnel and in protecting the LNG ships and the terminal.

67. Sabine LNG shall develop an Emergency Response Plan (including evacuation) and coordinate procedures with the Coast Guard, state, county, and local emergency planning groups, fire departments, state and local law enforcement, and appropriate federal agencies. This plan should 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/methods for residents along the route of the LNG vessel 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 should be filed with the Secretary for review and written approval by the Director of OEP **prior to initial site preparation for the Phase 2 facilities**. Sabine LNG shall notify FERC staff of all planning meetings in advance and shall report progress on the development of its Emergency Response Plan **at 3-month intervals**.

68. The Emergency Response Plan shall include a Cost-Sharing Plan identifying the mechanisms for funding all project-specific security/emergency management costs that would be imposed on state and local agencies. In addition to the funding of direct transit-related security/emergency management costs, this comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. The Cost-Sharing Plan shall be filed with the Secretary for review and written approval by the Director of OEP **prior to initial site preparation**.
69. Sabine LNG shall **annually** review its waterway suitability assessment relating to LNG vessel traffic for the project; update the assessment to reflect changing conditions which may impact the suitability of the waterway for LNG marine traffic; provide the updated assessment to the cognizant Captains of the Port/Federal Maritime Security Coordinator (COTP/FMSC) for review and

validation and if appropriate, further action by the COTP/FMSC relating to LNG vessel traffic; and provide a copy to the FERC staff.

70. **Prior to accepting ships greater than 140,000 m<sup>3</sup> in capacity**, Sabine LNG shall provide the necessary information to demonstrate that the transient hazard areas identified in the EA are applicable. Sabine LNG shall file this information with the Secretary for review and written approval of the Director of OEP. This information shall also be provided to the Coast Guard.