

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;
Sudeen G. Kelly, Marc Spitzer,
Philip D. Moeller, and Jon Wellinghoff.

Cameron LNG, LLC

Docket No. CP06-422-000

ORDER GRANTING AUTHORIZATION
UNDER SECTION 3 OF THE NATURAL GAS ACT

(Issued January 18, 2007)

1. On July 18, 2006, Cameron LNG, LLC (Cameron LNG) filed an application pursuant to section 3(a) of the Natural Gas Act (NGA) and Part 153 of the Commission's regulations to expand the liquefied natural gas (LNG) import terminal previously authorized by the Commission in Docket No. CP02-378-000 *et al.* and currently under construction near Hackberry, Louisiana.¹ Cameron LNG's instant application seeks authority to: (1) increase the send-out rate of the LNG terminal from 1,500,000 dekatherms (Dth) of natural gas per day, or the equivalent of 1.5 billion cubic feet (Bcf) of natural gas, to 1.8 Bcf per day on an interim basis and, ultimately, to 2.65 Bcf per day; (2) increase the LNG storage capacity through the addition of a fourth storage tank; (3) increase the LNG unloading rate at each berth; and (4) construct facilities to produce and inject inert gas into send-out natural gas as an optional method of controlling its British thermal unit (Btu) content (the Expansion Project).
2. In this order, the Commission finds that Cameron LNG's proposal is consistent with the public interest and grants its requested authorization under section 3 of the NGA to construct and operate the Expansion Project, subject to the conditions discussed herein.

I. Background

3. Cameron LNG is a wholly-owned subsidiary of Sempra LNG. Sempra LNG, a wholly-owned subsidiary of Sempra Global, was formed for the purpose of developing, owning, and operating LNG terminal facilities. Sempra Global is a wholly-owned subsidiary of Sempra Energy.

¹ *Cameron LNG, LLC*, 104 FERC ¶ 61,269 (2003).

4. On May 30, 2002, Hackberry LNG Terminal, L.L.C. (Hackberry LNG) filed an application in Docket No. CP02-374-000 *et al.* requesting authorization to site, construct and operate an LNG terminal providing service at market-based rates, authorization to construct and operate a 35.4-mile long, 36-inch diameter pipeline from the tailgate of the LNG terminal to Transcontinental Gas Pipe Line Corporation's compressor station in Beauregard Parish, Louisiana, issuance of a Part 284 subpart G blanket transportation certificate, and issuance of a Part 157 subpart F blanket construction certificate.

5. On December 18, 2002, the Commission issued a preliminary determination on non-environmental issues finding that Hackberry LNG's proposal would be consistent with the public interest, subject to the conditions set forth therein and completion of favorable environmental review.² The Commission granted Hackberry LNG authority to provide terminalling service at the rates, terms, and conditions mutually agreed to with its customer and affiliate, Dynegy Marketing & Trade (Dynegy Marketing), which had entered into a 30-year binding precedent agreement for 100 percent of the proposed LNG terminalling capacity. The Commission did not require Hackberry to offer firm and interruptible open-access terminalling service or to maintain a tariff and rate schedule for that service.

6. After issuance of the preliminary determination, Sempra Energy acquired all of the membership interests of Hackberry LNG and changed the name of the company to Cameron LNG. By acquiring the interests of Hackberry LNG, Cameron LNG became the project sponsor of both the LNG terminal development projects and the pipeline and, thus, became the applicant in that proceeding.³

7. In an order issued on September 11, 2003, the Commission authorized Cameron LNG to site, construct, and operate the LNG terminal pursuant to NGA section 3(a), and to construct, own, and operate the takeaway pipeline pursuant to NGA section 7(c).⁴ This order required Cameron LNG to complete construction within five years.

² *Hackberry LNG Terminal, L.L.C.*, 101 FERC ¶ 61,294 (2002).

³ After Sempra Energy purchased Hackberry LNG, Dynegy Marketing withdrew from the project.

⁴ *Cameron LNG, LLC*, 104 FERC ¶ 61,269 (2003). The September 11, 2003 Order also issued to Cameron LNG the requested Part 284 subpart G blanket transportation certificate and the Part 157 subpart F blanket construction certificate. The Commission later approved the transfer of these section 7 pipeline certificates from Cameron LNG to Cameron Interstate Pipeline, LLC (Cameron Interstate) (*Cameron LNG, LLC*, 111 FERC ¶ 61,490 (2005)).

8. On April 13, 2005, in Docket No. CP02-378-002, the Commission issued an order amending Cameron LNG's authorization to allow it to modify the configuration of the terminal berthing facilities to enable such facilities to accommodate larger LNG tankers.⁵

9. On May 22, 2006, in Docket No. CP02-378-004, the Commission issued an order further amending Cameron LNG's authorization so that the early stages of construction of its LNG terminal, which already had commenced, could incorporate certain design modifications in anticipation of the Expansion Project proposed in this proceeding.⁶ At the time, this Expansion Project was still in the pre-filing process in Docket No. PF06-10-000.

II. Proposal

10. Cameron LNG proposes to modify its LNG terminal to:

- Expand the capacity of its LNG terminal facilities to increase the authorized send-out rate from 1,500,000 Dth per day to an ultimate send-out rate of 2.65 Bcf per day;
- Authorize an interim send-out rate of up to 1.80 Bcf per day while the Expansion Project facilities are under construction, so that customers who have contracted for long-term processing capacity can benefit from the increased vaporization capabilities of the LNG terminal as soon as practical;
- Increase the LNG storage capacity from 480,000 cubic meters to 640,000 cubic meters by adding a fourth full-containment storage tank with a capacity of 160,000 cubic meters, similar to the previously authorized tanks;

⁵ *Cameron LNG, LLC*, 111 FERC ¶ 61,018 (2005).

⁶ *Cameron LNG, LLC*, 115 FERC ¶ 61,229 (2006). This order also amended Cameron Interstate's certificate authority to permit modifications to the pipeline design and approved a replacement pro forma tariff and updated rates. The Commission further amended Cameron Interstate's certificate authority on December 20, 2006, to permit additional modifications to the pipeline facilities and approved revised transportation rates (117 FERC ¶ 61,297 (2006)).

- Increase the LNG unloading rate at each berth from 12,000 cubic meters per hour to 17,500 cubic meters per hour; and
- Modify the Btu control facilities to permit the option of diluting send-out gas with an inert gas stream composed of 95 percent nitrogen and 5 percent oxygen. This methodology will be an alternative to, rather than a replacement for, the natural gas liquids (NGL) extraction technology using the previously authorized facilities.

11. Cameron LNG states that the interim increase in the authorized send-out rate from 1,500,000 Dth per day to up to 1.8 Bcf per day will be accomplished by using the installed spare process equipment and the design margin of the installed vaporization equipment. Cameron LNG explains that detailed engineering of the LNG terminal determined that the spares and the design margin can be used to increase the send-out rate to up to 1.8 Bcf per day while the Expansion Project facilities are under construction, thereby increasing the efficiency of the terminal and the value of the services provided to long-term customers of the LNG terminal.

12. Cameron LNG states that while construction of the fourth LNG storage tank will require approximately 36 months, construction of the balance of the Expansion Project will require only 12 to 15 months. Cameron LNG proposes to install the equipment necessary to increase the send-out rate to 2.65 Bcf per day during the first 15 months of construction in order to increase the send-out capacity of the tanks previously authorized, while waiting for the completion of the new storage tank. Cameron LNG explains further that the expanded terminal will have the capability to unload two LNG ships simultaneously, at a maximum rate of 12,000 cubic meters per hour at each berth, for a maximum of 24,000 cubic meters per hour. However, states Cameron LNG, if only one ship is unloaded at a time, the expanded facilities at each berth will be capable of an unloading rate of 17,500 cubic meters per hour. As a result of the Expansion Project, the number of LNG vessels utilizing the LNG terminal will increase.

13. In addition, Cameron LNG states that the nitrogen for injection to reduce the Btu content of the mixture of gases will be produced on site by compressing air to 190 pounds per square inch atmosphere (psia) and then processing the compressed air in a membrane. Cameron LNG explains that the membrane will remove oxygen and water vapor from the compressed mixture. The inert gas mixture exits the membrane at 167 psia. Conventional electric motor driven reciprocating compressors will compress the nitrogen from 167 psia to pipeline discharge pressure. The volume of nitrogen mixed with the send-out gas will be controlled by a flow ratio controller. The set point of the flow ratio controller will be reset by an on-stream gas chromatograph.

14. With respect to the proposed project facilities, Cameron LNG states that the increased send-out rate to 2.65 Bcf per day will be accomplished by the addition of the fourth LNG storage tank, in-tank pumps, send-out pumps, submerged combustion vaporizers, unloading arms, a hot water heating system consisting of natural gas fired hot water heaters, water circulation pumps, and a shell and tube heat exchanger. Cameron LNG proposes to install the following specific facilities:

- Two (2) LNG 16-inch unloading arms, one for each berth, added to the LNG terminal unloading system;
- One (1) full-containment LNG storage tank with a net working capacity of 160,000 cubic meters (1,006,000 barrels), equipped with three (3) can-type fully submerged LNG in-tank pumps sized for 4,037 gallons per minute (gpm) each;
- One (1) reciprocating boil-off gas (BOG) compressor identical to the three BOG compressors included in the previously authorized LNG terminal facilities and two (2) vapor return blowers, each sized for 9,300 scf per minute, added to the LNG terminal BOG recovery system;
- An LNG transfer system to transfer LNG from the BOG recondenser to the send-out pumps and on to the LNG vaporizers. The transfer system will consist of six (6) LNG send-out pumps (one being a spare), each sized for 2,034 gpm, that are being integrated with the LNG terminal's eight (8) send-out pumps for a new total of fourteen (14) send-out pumps (with two designated as spares);
- An LNG vaporization system consisting of eight (8) submerged combustion vaporizers (one being a spare), each rated for 120 million Btus per hour (MMBtu per hour) each equivalent to a send-out rate of 165 million cf per day (MMcf per day), that are being integrated with the LNG terminal's ten (10) submerged combustion vaporizers (SCVs) for a new total of eighteen (18) SCVs (with two designated as spares);
- Two (2) shell-and-tube superheaters (one being a spare), each rated for 126 MMBtu per hour using heated water as the heat source, to heat the high pressure gas from both the LNG terminal SCVs and the Expansion Project SCVs for pipeline transport;

- One (1) new sales gas meter, identical to the four (4) meters previously authorized;
- A hot water heating system consisting of two (2) natural gas-fired hot water heaters (one being a spare) each sized for 140 MMBtu per hour, and two (2) centrifugal hot water circulation pumps (one being a spare) each sized for 3,300 gpm;
- Nitrogen production and injection equipment for Btu control, consisting of air compressors, air pre-treatment, nitrogen membrane modules, nitrogen delivery compressors, powerhouse with switchgear, and associated utilities;
- One (1) new fuel gas heater (heat exchanger) to operate in parallel with the LNG terminal's fuel gas heaters;
- One (1) new instrument air compressor, instrument air drier, one (1) new instrument air surge vessel;
- An additional segment of parallel 36-inch unloading lines to connect one of the previously authorized LNG storage tanks and the new LNG storage tank to the previously authorized unloading header;
- A 16-inch line from the new vapor return blowers to the 16-inch line connecting the berths to the vapor return blowers; and
- A 400-foot-long by 225-foot-wide permanent construction dock.

15. Cameron LNG also proposes to modify the LNG spill containment system, fire water system, nitrogen and service water utility systems, various hazard detection, control, and prevention systems, and utilities. In addition, Entergy, the local electric company will install additional non-jurisdictional facilities supplying electric power to the Cameron LNG terminal. Specifically, Entergy will install a third 69-kilovolt (kV) transmission line and a new substation to serve the proposed terminal Expansion Project. Entergy will be responsible for securing all required permitting, purchasing any required land, and completing construction.

16. The Expansion Project facilities will be built wholly on land currently leased by Cameron LNG for construction of the previously authorized LNG terminal project. The

Expansion Project will require 40.5 acres, of which 35.7 acres will have been previously disturbed by the ongoing construction of the LNG terminal project. Cameron LNG indicates that of the 4.8 acres that would be impacted by the Expansion Project but not by the LNG terminal project, 1.8 acres of wetlands would be permanently replaced with a parking lot and 3.0 acres of river bed would be dredged to create a deep water slip at the construction dock. Cameron LNG indicates that there are no new landowners affected by the Expansion Project.

17. Cameron also states that its application for the Expansion Project seeks no change in the terminalling service approved by the Commission in the previous orders in this proceeding. Cameron LNG asserts that the Expansion Project, by increasing the amount of LNG that can be imported, stored, regasified, and sent out as natural gas will further increase access to foreign sources of natural gas, further improve the dependability of international trade, and further increase competition within the United States for natural gas supply. In addition, Cameron LNG states that, as the rates for LNG storage, terminalling, and regasification will be market-based, the costs of the LNG terminal project, including the Expansion Project, will be recovered through terminal service provided under negotiated agreements, so that the economic risk of the Expansion Project will be borne by Cameron LNG. Cameron LNG is in the process of marketing the base LNG terminal capacity and Expansion Project capacity and, to date, has announced two LNG terminal customers, Merrill Lynch Commodities, Inc. and Eni SPA, an LNG importer. Cameron LNG anticipates placing the Expansion Project facilities in service in October 2010.⁷

III. Notice and Intervention

18. Public notice of Cameron LNG's application, as supplemented, was published in the *Federal Register* on August 7, 2006 (71 Fed. Reg. 44680). Southern LNG Inc. filed a timely motion to intervene in the proceeding. Timely, unopposed motions to intervene are granted by operation of Rule 214 of the Commission's Rules of Practice and Procedure.⁸

⁷ Application of Cameron LNG, Resource Report 1, Figure 1.3-1.

⁸ 18 C.F.R. § 385.214 (2006).

19. In addition, on December 21, 2006, CITGO Petroleum Corporation (CITGO) filed a motion to intervene out of time.⁹ CITGO states that it owns a crude oil refinery on the Calcasieu Channel, which may be materially affected by any changes in shipping operations on the Calcasieu River. On January 4, 2007, Cameron LNG filed an answer in opposition to CITGO's motion to intervene out of time. Cameron LNG argues that CITGO's motion is deficient on its face and should be denied because CITGO fails to show it has a cognizable interest in the proceeding, fails to accept the record as it exists, and fails to provide a basis for its lateness.

20. The Commission's regulations provide that timely motions to intervene in Commission proceedings are those filed within the time period prescribed by the Commission's notice of the proceeding for filing interventions and protests.¹⁰ In this case, motions to intervene were due by August 21, 2006. However, the Commission's regulations also provide that in a proceeding dealing with environmental issues, any person may file to intervene on environmental grounds based on the draft environmental impact statement, and that such intervention will be deemed timely as long as it is filed within the comment period for the draft environmental impact statement.¹¹ In this case, the Commission issued an environmental assessment rather than an environmental impact statement, and CITGO moved to intervene and filed comments on the environmental assessment one day after the December 20, 2006 deadline for comments on the environmental assessment.¹²

21. Although the Commission prepared an environmental assessment and not an environmental impact statement, and although CITGO moved to intervene and filed comments on the environmental assessment one day late, we will grant CITGO's motion to intervene. In the interest of giving full consideration to requests for authorization of natural gas projects, including those for LNG facilities, the Commission has a liberal

⁹ CITGO also filed on December 21, 2006 comments to the environmental assessment issued on November 17, 2006. On January 10, 2007, Cameron LNG filed a request for leave to submit a reply to CITGO's comments and comments responding to CITGO.

¹⁰ 18 C.F.R. § 385.210(b) (2006).

¹¹ 18 C.F.R. § 157.10(a)(2) (2006) and 18 C.F.R. § 380.10(a)(1)(i) (2006).

¹² CITGO's motion to intervene and comments were received electronically at the Commission at 6:24 pm and 6:37 pm, respectively, on December 20 and, thus, are deemed to have been filed on December 21, one day late.

intervention policy in natural gas cases at this particular stage of the proceeding, that is before an order on the merits has been issued.¹³ Here, CITGO moved to intervene before we issued our merits order and less than 24 hours after the deadline for comments on the environmental assessment had passed.

22. The Commission finds that CITGO has demonstrated an interest in this proceeding and has raised matters germane to the environmental assessment in its comments. CITGO owns and operates a crude oil refinery on the Calcasieu ship channel, and receives crude supply, and delivers refined products, via tankers that must pass the Cameron LNG terminal and expansion project. CITGO raises potential safety issues resulting from the location of the Expansion Project construction dock and the increase in LNG vessel traffic from the Expansion Project. Further, granting CITGO intervention at this stage of the proceeding will not cause undue delay or disruption or otherwise prejudice the applicant or other parties.¹⁴ Accordingly, we will grant CITGO's motion to intervene out of time and will consider both CITGO's and Cameron LNG's comments in the environmental analysis section of this order.

III. Discussion

A. Section 3 Authorization

23. Because Cameron LNG's proposal involves facilities that will be used to import gas from foreign countries, the construction and operation of the facilities and the

¹³ See *Gulfstream Natural Gas System, L.L.C.*, 95 FERC ¶ 61,100 (2001) and *Iroquois Gas Transmission System, L.P.*, 59 FERC ¶ 61,094 at 61,358 (1992).

¹⁴ 18 C.F.R. § 385.214(d) (2006).

location of the facilities require approval by the Commission under section 3 of the NGA.¹⁵ 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.”

24. 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.¹⁶ The record in this case shows that the Expansion Project will provide such additional supplies of natural gas to consumers. The Expansion Project is designed: (1) to provide a stable source of an additional 1.15 Bcf of natural gas per day over the currently authorized level to the Cameron LNG terminal for domestic consumption to supplement diminishing supplies from other sources; (2) to accommodate short-term demand fluctuations and shipping pattern variations through the addition of a fourth LNG storage tank, allowing Cameron LNG greater operational flexibility to satisfy the natural gas usage and LNG storage needs of its customers; (3) to allow the simultaneous berthing and unloading of two ships, increasing the number of ships that can be handled and the volume of LNG that can be offloaded over any given time; and (4) to provide a technological alternative for ensuring that send-out gas from different LNG sources can be processed to meet uniform pipeline quality gas specifications, allowing Cameron LNG to utilize a wider array of LNG sources.¹⁷

¹⁵ 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. DOE Delegation Order No. 00-004.00A, effective May 16, 2006, FERC Stats. & Regs. ¶ 9920 (2006). However, 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.

¹⁶ *Hackberry LNG, LLC*, 101 FERC ¶ 61,294 at P 26 (2002).

¹⁷ Application of Cameron LNG, Resource Report 1 at p. 1-3; Environmental Assessment for the Cameron LNG Terminal Expansion Project, issued November 17, 2006, at 2.

In addition, because the Expansion Project will provide incremental capacity at market-based rates, the economic risks of the Expansion Project will be borne by Cameron LNG. Further, since this project is an expansion of a new LNG import terminal under construction but not yet in service, the Expansion Project will result in no subsidization or degradation of service to any existing customers. Accordingly, the Commission finds that, subject to the conditions imposed in this order, the Expansion Project is not inconsistent with the public interest, and grants Cameron LNG authorization under NGA section 3 to construct and operate the proposed Expansion Project facilities.

B. Environmental Analysis

25. Cameron LNG used the Commission's pre-filing process for its Expansion Project. Docket No. PF06-10-000 was established on December 22, 2005 for Cameron LNG's pre-filing proceeding.

26. The purpose of the Commission's pre-filing process is to involve interested stakeholders early in natural gas project planning, as contemplated by the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality regulations, and to identify and resolve issues prior to filing an application for the project. Cameron LNG's pre-filing proceeding for the instant Expansion Project allowed more than seven months of stakeholder input prior to Cameron LNG's filing its application on July 18, 2006.¹⁸

27. On February 3, 2006, in Docket No. PF06-10-000, the Commission's environmental staff issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Terminal Expansion Project and Request for Comments on Environmental Issues* (NOI). We received a single response to the NOI from the U.S. Fish and Wildlife Service, stating that consultation for the original LNG terminal and pipeline project analyzed all of the potential effects to listed species and that no additional consultation would be necessary.

28. The environmental assessment (EA) prepared by the Commission's staff for the Expansion Project was issued on November 17, 2006 for public comment within 30 days. The EA evaluates the proposed changes and additions to Cameron's LNG terminal project and, where necessary, updates the analyses in the final environmental impact

¹⁸ On January 19, 2006, Cameron LNG held an open house at the Hackberry School. Affected landowners were notified by mail and the open house was announced on January 12 and 19, 2006 in the local newspaper, the *Cameron Pilot*. The Commission's environmental staff was in attendance at the open house.

statement prepared for the original LNG terminal project to incorporate the Expansion Project. Thus, the EA assesses the potential environmental effects specific to Cameron LNG's proposed expansion in this proceeding, as well as the engineering feasibility of Cameron's expansion proposal. The EA addresses geology and soils, water resources, fisheries, and wetlands, vegetation and wildlife, endangered and threatened species, land use, socioeconomics, cultural resources, air and noise quality, reliability and safety, and alternatives. The Commission received comments on the EA from the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS),¹⁹ CITGO, Mr. Charles Atherton, and Cameron LNG.

29. In its comments, CITGO first argues that, as an expansion of the original LNG terminal, Cameron LNG's instant Expansion Project poses the same risks and concerns identified in the comments submitted by CITGO and BG LNG Services, LLC in the proceeding in which modifications to the terminal berthing facilities of Cameron LNG's terminal were authorized.²⁰ CITGO asserts that it has run numerous simulations for passing vessels at the Cameron LNG facility, which show multiple failures and inherent dangers in the previously authorized Cameron LNG berth design. CITGO further asserts that the mitigation conditions imposed by the Commission in Docket No. CP02-378-002 are inadequate.

30. Cameron LNG's current application for the Expansion Project does not propose any modifications to the design of the previously authorized berth facilities. While Cameron LNG proposes to attach an extra unloading arm to each berth, this would not change the configuration, location, or size of the berth, nor would it affect the location of the LNG ships docked at the previously authorized berth. Therefore, issues related to the design and safety of the terminal berth are outside the scope of this proceeding. Furthermore, the U.S. Coast Guard issued a Letter of Recommendation (LOR) for the Cameron LNG facility, including the modified berth, on May 5, 2005, stating that the waterway is suitable for the project.²¹

¹⁹ The NMFS proposes no revisions to the EA or the EA's recommendations. The NMFS addresses Cameron LNG's proposal to mitigate the Expansion Project's destruction of 1.8 acres of saline marsh and impact on 3.0 acres of subaqueous water bottoms by creating 3.6 acres of tidal marsh adjacent to the 55 acres of wetlands already being created to compensate for the impacts associated with the LNG terminal project. The NMFS states that this mitigation proposal adequately offsets adverse impacts to wetlands, essential fish habitat, and associated marine fishery species.

²⁰ See *Cameron LNG, LLC*, 111 FERC ¶ 61,018 (2005).

²¹ See Appendix A of EA.

31. Next, CITGO states that the prior simulation studies indicated the potential for inbound vessels to ground north of the authorized berth in the event of engine or rudder loss. Thus, CITGO argues that positioning the proposed construction dock north of the authorized berth will increase the likelihood that potential inbound vessel groundings will become allisions, escalating the danger of fire and explosion from crude oil tankers alliding with the construction dock. CITGO maintains that the introduction of the construction dock poses a whole new hazard which should require the Commission and the U.S. Coast Guard to review their earlier approvals by conducting new studies.

32. The U.S. Coast Guard has primary responsibility for safety-related issues associated with LNG tankers and other vessels. In a February 6, 2006 letter to Cameron LNG,²² the U.S. Coast Guard stated that the Terminal Expansion Project would require neither a new LOR, nor any revision to the May 5, 2005 LOR. As stated in that letter, this decision was based on the determination that “the proposed changes do not appear to pose any new or significant issues that will affect the waterway or existing requirements.” The Commission does not agree with CITGO that the proposed construction dock necessitates the reevaluation of the U.S. Coast Guard’s LOR findings or the Commission’s earlier determinations by undertaking new studies. The U.S. Coast Guard continues to review LNG marine transport operations in the Calcasieu River on an ongoing basis and will impose measures to ensure the safety of both the facility and any passing vessels. As is the case with existing LNG vessel traffic, the arrival, transit, cargo transfer, and departure of LNG ships in the Calcasieu ship channel will be required to adhere to the procedures of a Liquefied Natural Gas Vessel Management and Emergency Plan authorized by the Coast Guard. In addition, Cameron LNG will develop Operations and Emergency Manuals in consultation with the U.S. Coast Guard. These procedures would be developed to ensure the safety and security of all operations associated with LNG ship transit and unloading.

33. Further, the U.S. Army Corps of Engineers (a cooperating agency in the environmental review process), who is responsible for ensuring the channel remains open, raised no concerns regarding the placement of the construction dock. The U.S. Army Corps of Engineers regulates how close the construction dock and moored vessels may be to the river channel. As Cameron LNG points out in its comments, its construction dock and temporary construction barges meet the requirements of the U.S. Army Corps of Engineers for the construction of permanent structures on the channel as set forth by the drawing titled, *Permit Requirements for Construction of Utilities*.²³

²² *Id.*

²³ January 10, 2006 Comments of Cameron LNG at 8.

34. Additionally, CITGO argues that the Expansion Project will add an estimated 136 LNG vessels per year on the Calcasieu Channel, increasing ship traffic congestion, causing more operational disruption to channel users, and making traffic delays worse. CITGO further argues that the increase in channel traffic and the larger LNG vessels will rapidly erode the channel sides, requiring increased dredging. CITGO states that the current channel does not meet project depth and width requirements at many inner and outer bar locations. CITGO asserts that the Commission must require the U.S. Army Corps of Engineers to keep the channel dredged to project width and depth requirements and require Cameron LNG to maintain the turning basin at a 45-foot depth. Additionally, CITGO states that the Commission should ensure that the costs of any additional dredging of the turning basin and ongoing maintenance dredging necessitated by the Expansion Project be borne by Cameron and not other channel users. CITGO maintains that costs of any other mitigation measures to address the Expansion Project's impacts on safety, traffic, and dredging also be imposed on Cameron and not on other channel users, unless no alternative mitigation measures are available.

35. With respect to the CITGO's arguments regarding the increase in vessel traffic from the Expansion Project causing ship traffic congestion, a July 18, 2005 report entitled, "Updated Ship Traffic Study for the Calcasieu River" prepared by Lanier and Associates, estimates a total annual vessel traffic of 2,017 vessels by 2009, which includes the proposed 346 ships for the Cameron LNG terminal and the 484 ships for the Creole Trail LNG facility.²⁴ This study also predicts a maximum practical channel capacity of approximately 2,316 vessels per year. Therefore, while vessel traffic would increase as a result of the Expansion Project, the channel would not become overloaded as the total vessel traffic would remain within the maximum capacity of the channel. With respect to the necessity for additional dredging as a result of the Expansion Project, the dredging of the ship channel falls under the authority of U.S. Army Corps of Engineers, so that the volume and timing of dredging activities is at its discretion, not that of the Commission. Similarly, the determination of who should bear the cost responsibility for the dredging is also beyond the authority of the Commission.

36. Mr. Charles Atherton, a retired citizen, filed comments in opposition to the construction of any additional Cameron LNG docks due to the potential for ship collisions with docked LNG tankers. Mr. Atherton states that the Calcasieu Channel has not been maintained to a depth of 40 feet and width of 400 feet for its full length, and states that recent simulations commissioned by the Calcasieu River Waterway Harbor Safety Committee and CITGO show that groundings occur in this area. Mr. Atherton asserts that no ship navigation studies or simulations have been filed in this proceeding

²⁴ See EA at 73.

on Cameron LNG's Expansion Project to demonstrate that Cameron LNG's docks are safe for ship navigation. Mr. Atherton questions how approximately 3,000 ships yearly will be able to navigate safely past the docked LNG ships without hitting the docks or running aground. Mr. Atherton argues that Cameron LNG's docks should have been located in a protected ship slip dug deep into the west bank of the ship channel, protected from ship traffic, as well as from terrorist threats.

37. As stated above, the design and safety of the LNG unloading docks was previously addressed in Docket No. CP02-378-002, where the Commission authorized the berthing facilities,²⁵ and is not at issue in this proceeding. To the extent Mr. Atherton is concerned about the safety of the proposed construction dock in this case, we have addressed such concerns, *supra*, in response to CITGO's comments.

38. Mr. Atherton also is concerned that the EA does not address the potential damage from chemical releases and oil spills as the result of ship collisions or allisions with LNG ships, particularly those involving heavy crude oil cargo ships. Mr. Atherton argues that the use of tractor tugs on 600,000-barrel heavy crude oil tankers will not safely prevent devastating environmental oil spills, collisions, allisions, or groundings.

39. While the EA addressed the resulting damage that could occur from an LNG spill,²⁶ the Commission's environmental staff did not speculate in the EA on hypothetical scenarios as to the type of ships that might collide with an LNG vessel and the resulting spills. The U.S. Coast Guard is responsible for the safety of all traffic passing through the Calcasieu ship channel and is also responsible for the safety of both the facility and any passing vessels.

40. In its comments, Cameron LNG requests that the Commission clarify and/or modify two of the EA's conditions. First, Cameron LNG states that Environmental Condition Nos. 8 and 42, requiring bi-weekly and monthly reporting, respectively, appear to establish inconsistent reporting schedules. Cameron LNG requests that the Commission clarify that the monthly reporting schedule set forth in Environmental Condition 42 also apply to Environmental Condition No. 8. The Commission denies Cameron LNG's request. The two different reporting schedules in the environmental conditions are not inconsistent with each other, as the two conditions require the reporting of two different types of information. Environmental Condition 42 requires the monthly filing of a general construction progress report, which encompasses all

²⁵ See *Cameron LNG, LLC*, 111 FERC ¶ 61,018 (2005).

²⁶ EA at 86.

construction activities undertaken, construction problems encountered, and projected completion schedules. On the other hand, Environmental Condition 8, having a somewhat narrower focus, requires the filing of a bi-weekly status report by the environmental inspector with respect to the construction work as it relates to environmentally sensitive areas and environmental compliance.

41. Second, Environmental Condition No. 28 in the EA states that, “[t]he final design shall include a discretionary vent valve for each LNG tank, operable through the [Distributed Control System (DCS)].” As requested by Cameron LNG, we are modifying this condition to reflect that there is only one tank being proposed in the Expansion Project.

42. Cameron LNG also proposes two corrections to the EA. First, Cameron LNG requests that the Commission confirm that the storm surge barrier protecting the LNG storage tank, and the dike surrounding the storage tank, are one and the same and not two independent protection systems as described in section 2.1.2 of the EA.²⁷ The Commission confirms that the dike surrounding the LNG storage tank is the storm surge barrier. Second, the Commission confirms that Cameron LNG is not proposing to employ the use of selective catalytic reduction (SCR), contrary to the statement in section 2.1.3 of the EA.²⁸

43. A cryogenic design and technical review of the proposed terminal design and safety systems was completed and reported in the EA.²⁹ That review noted several areas of concern and, as a result, the EA recommends 27 environmental conditions related to terminal design and safety requiring certain modifications to the terminal design. Information pertaining to these modifications, as revised above, is to be filed for review and approval by the Director of the Office of Energy Projects (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.

²⁷ EA at 12.

²⁸ The EA incorrectly states that “[n]itrogen Oxide (NOx) emissions from the water heaters would be controlled through the use of selective catalytic reduction (SCR).” EA at 12.

²⁹ EA at 50.

44. The Commission has applied its four-factor test for determining the need to include non-jurisdictional facilities in our environmental review.³⁰ The Commission has determined that the proposed electric transmission line and substation to be constructed by Entergy are subject to our review, and discuss their potential environmental impact in the EA.

45. Based on the analysis in the EA, the Commission concludes that if Cameron LNG constructs or operates the proposed storage tank, construction dock, and associated facilities in accordance with its application, supplements, and our mitigation measures listed below, approval of this project would not constitute a major federal action significantly affecting the quality of the human environment.

46. Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of this certificate. 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.³¹ Cameron LNG shall notify the Commission's environmental staff by telephone, e-mail, or facsimile of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies Cameron LNG. Cameron LNG shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

47. At a hearing held on January 18, 2007, the Commission on its own motion, received and made a part of the record all evidence, including the application, as supplemented, and exhibits thereto, submitted in this proceeding. Upon consideration of this record,

The Commission orders:

(A) Cameron LNG is authorized to construct and operate the Expansion Project facilities at its LNG import terminal in Cameron Parish, Louisiana to increase the send-out capacity of the LNG terminal, subject to conditions and as described in this order and in Cameron LNG's application.

³⁰ See *Algonquin Gas Transmission Company*, 59 FERC ¶ 61,255 (1992).

³¹ 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.*, 52 FERC ¶ 61,091 (1990) and 59 FERC ¶ 61,094 (1992).

(B) The authorization in Ordering Paragraph (A) is conditioned upon Cameron LNG's compliance with the environmental conditions listed in the appendix to this order.

(C) Construction of Cameron LNG's facilities authorized herein must be completed within four years from the date of this order in accordance with section 157.20(b) of the Commission's regulations.

(D) Cameron LNG shall notify the Commission's environmental staff by telephone, e-mail, and/or facsimile of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies Cameron LNG. Cameron LNG shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

By the Commission.

(S E A L)

Magalie R. Salas,
Secretary.

APPENDIX

Environmental Conditions

1. Cameron 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 this Order. Cameron must:
 - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
 - b. justify each modification relative to site-specific conditions;
 - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
 - d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification.**
2. For LNG facilities, the Director of OEP has delegated authority to take all steps necessary to ensure the protection of life, health, property, and the environment during construction and operation of the project. This authority shall include:
 - a. stop work authority and authority to cease operation; and
 - b. the design and implementation of any additional measures deemed necessary to assure continued compliance with the intent of the conditions of this Order.
3. **Prior to any construction**, Cameron 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. Cameron 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.

5. **At least 60 days before the start of construction**, Cameron shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Cameron will implement the mitigation measures required by this Order. Cameron must file revisions to the plan as schedules change. The plan shall identify:
 - a. how Cameron 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 Cameron 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 Cameron's organization having responsibility for compliance;
 - f. the procedures (including use of contract penalties) Cameron 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.

6. The environmental complaint resolution procedure established for Cameron's LNG Terminal Project shall also be used for this project.
7. Cameron shall employ an environmental inspector. The environmental inspector shall be:
 - a. responsible for monitoring and ensuring compliance with all mitigation measures required by this Order and other grants, permits, certificates, or other authorizing documents;
 - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 5 above) and any other authorizing document;
 - c. empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;
 - d. a full-time position, separate from all other activity inspectors;
 - e. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
 - f. responsible for maintaining status reports.
8. Cameron shall file updated status reports prepared by the environmental inspector with the Secretary on **a biweekly 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 this Order, and the measures taken to satisfy their concerns; and

- f. copies of any correspondence received by Cameron from other federal, state or local permitting agencies concerning instances of noncompliance, and Cameron's response.
9. Cameron 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.
10. **Within 30 days of placing the authorized facilities in service**, Cameron 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 Cameron 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.
11. Cameron shall commit to implementing the U.S. Fish and Wildlife Service 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, 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.
12. Cameron shall commit to implementing the following:
 - a. any whale accidentally struck, any dead whale carcass spotted, and any whale observed entangled in fishing gear shall be reported immediately to the U.S. Coast Guard (Coast Guard) noting the precise location and time of the accident or sighting; and
 - b. in the event of a strike or sighting, the following information shall be provided to the Coast Guard: location and time of the accident or sighting, wind speed and direction; speed of the vessel; size of the vessel; water depth; description of the impact; fate of the animal, if known; and species and size, if known.

13. Cameron shall file documentation of concurrence from Louisiana Department of Natural resources that the project is consistent with the Louisiana Coastal Management Program with the Secretary **prior to construction**.
14. Cameron shall file a noise survey with the Secretary **no later than 60 days** after placing the project facilities in service. If the noise attributable to the operation of the facilities (the previously authorized sources plus the proposed project sources) at full load exceeds an L_{dn} of 55 dBA at the nearby noise sensitive area, Cameron shall install additional noise controls to meet that level **within 1 year of the in-service date**. Cameron shall confirm compliance with the L_{dn} of 55 dBA attributable to the operation of the facilities requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.
15. Cameron shall **annually** review its waterway suitability assessment relating to LNG vessel traffic for the LNG terminal; 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 Coast Guard Captain 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 FERC staff.

The following measures (Conditions 16-42) shall apply to the Terminal Expansion Project 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 condition. Items relating to Resource Report 13-*Engineering and Design Material* and security shall be submitted as critical energy infrastructure information (CEII) pursuant to 18 CFR Parts 388.112 and PL01-1. Information pertaining to items such as: off-site emergency response; procedures for public notification and evacuation; and construction and operating reporting requirements will be subject to public disclosure. Cameron shall file this information a minimum of 30 days before approval to proceed is required.

16. Complete plan drawings and a 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. A technical review, providing the following information for the proposed facility, shall be filed **prior to initial site preparation**:
 - a. identification of all combustion/ventilation air intake equipment and the distances to any possible hydrocarbon release (LNG, flammable refrigerants, flammable liquids, and flammable gases);
 - b. a demonstration that these areas are adequately covered by hazard detection, including a description of how these devices would isolate or shutdown any combustion equipment whose continued operation could add to or sustain an emergency.
 18. Complete plan drawings and a list of the fixed and wheeled dry-chemical, fire extinguishing, and other hazard control equipment shall be filed **prior to initial site preparation**. The 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 filed **prior to initial site preparation**.
 21. **Prior to initial site preparation**, Cameron shall file with the Secretary evidence of its ability to exercise legal control over the activities that occur within the portions of the thermal radiation exclusion zones that fall outside the site property line that can be built upon shall be filed.
 22. Cameron shall develop an Emergency Response Plan 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 shall include at a minimum:
 - a. designated contacts with state and local emergency response agencies;

- b. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
- c. procedures for notifying residents and recreational users within areas of potential hazard;
- d. evacuation routes/methods for residents and other public use areas that are within any transient hazard areas 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 shall be filed with the Secretary for review and written approval by the Director of OEP **prior to initial site preparation for the Cameron LNG Expansion facilities**. Cameron 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.

23. The Emergency Response Plan shall include a Cost-Sharing Plan identifying the mechanisms for funding all project-specific security/emergency management costs that will 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**.
24. The **final design** of the fixed and wheeled dry-chemical, fire extinguishing hazard control equipment shall identify manufacturer and model.
25. The **final design** shall include an updated fire protection evaluation carried out in accordance with the requirements of the National Fire Protection Association (NFPA) 59A, chapter 9.1.2.
26. The **final design** shall specify that the high-high level switch (LSHH-2002D) shall operate as a tank fill flow cutoff. In addition detection of high-high level from any combination of two of the three level measurement devices shall operate as a tank fill flow cutoff.
27. The **final design** shall include LNG tank fill flow measurement with high flow alarm.

28. The **final design** shall include a discretionary vent valve for the LNG tank, operable through the Distributed Control System (DCS).
29. The **final design** shall include a shutoff valve at the suction and discharge of each high pressure LNG pump.
30. The **final design** shall specify that the operated vent valve at the discharge of the vaporizer be sized for thermal relief.
31. The **final design** shall specify that piping and equipment that may be cooled with liquid nitrogen is to be designed for liquid nitrogen temperatures, with regard to allowable movement and stresses.
32. The **final design** shall include details of the shut down logic, including cause and effect matrices for alarms and shutdowns.
33. 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.
34. 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:
 - a. shall continuously monitor for the presence of a flammable fluid;
 - b. shall alarm the hazardous condition; and
 - c. shall shutdown the appropriate systems.
35. The **final design** shall include a HAZOP review of the completed design. A copy of the review and a list of the recommendations shall be filed.
36. All valves including drain, vent, main, and car sealed valves shall be tagged in the field during construction and **prior to commissioning**.
37. The design details and procedures to record and to prevent the tank fill rate from exceeding the maximum fill rate specified by the tank designer shall be filed **prior to commissioning**.

38. Complete plan drawings and a list of all hand-held fire extinguishers, including a list with the equipment tag number, type, size, and equipment covered shall be filed **prior to commissioning**. Plan drawings shall clearly show the planned location of all hand-held extinguishers.
39. Operation and Maintenance procedures and manuals, as well as safety procedure manuals, shall be filed **prior to commissioning**.
40. **Prior to commissioning**, Cameron shall coordinate with the Coast Guard to define the responsibilities of Cameron's security staff in supplementing other security personnel and in protecting the LNG tankers and terminal.
41. 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**.
42. Progress on construction of the Expansion Project shall be reported in **monthly** reports filed with the Secretary. Details shall include a summary of activities, projected schedule for completion, problems encountered and remedial actions taken. Problems of significant magnitude shall be reported to the FERC **within 24 hours**.

In addition, the following measures (recommendations 43-46) shall apply throughout the life of the facility:

43. The facility shall be subject to regular FERC staff technical reviews and site inspections on at least an **annual** basis or more frequently as circumstances indicate. Prior to each FERC staff technical review and site inspection, 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 annual report, shall be submitted.
44. **Semi-annual** operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions, abnormal operating experiences, activities (including ship arrivals, quantity and composition of imported LNG, vaporization quantities, boil-off/flash gas, etc.), plant modifications including future plans and progress thereof. Abnormalities shall include, but not be limited to: unloading/shipping problems, potential

hazardous conditions from offsite vessels, storage tank stratification or rollover, geysering, storage tank pressure excursions, cold spots on the storage tanks, storage tank vibrations and/or vibrations in associated cryogenic piping, storage tank settlement, significant equipment or instrumentation malfunctions or failures, non-scheduled maintenance or repair (and reasons therefore), relative movement of storage tank inner vessels, vapor or liquid releases, fires involving natural gas and/or from other sources, negative pressure (vacuum) within a storage tank and higher than predicted boiloff rates. Adverse weather conditions and the effect on the facility also shall be reported. Reports shall be submitted **within 45 days** after each period ending **June 30 and December 31**. In addition to the above items, a section entitled "Significant plant modifications proposed for the next 12 months (dates)" also shall be included in the semi-annual operational reports. Such information will provide the FERC staff with early notice of anticipated future construction/maintenance projects at the LNG facility.

45. In the event the temperature of any region of any secondary containment, becomes less than the minimum specified operating temperature for the material, the Commission shall be notified within 24 hours and procedures for corrective action should be specified.
46. 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 Commission staff. In the event an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made **immediately**, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. In all instances, notification shall be made to Commission staff **within 24 hours**. This notification practice shall be incorporated into the LNG facility's emergency plan. Examples of reportable LNG-related incidents include:
 - a. fire;
 - b. explosion;
 - c. estimated property damage of \$50,000 or more;
 - d. death or personal injury necessitating in-patient hospitalization;
 - e. free flow of LNG that results in pooling;
 - f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability,

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

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