

148 FERC ¶ 61,076
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Cheryl A. LaFleur, Acting Chairman;
Philip D. Moeller, John R. Norris,
and Tony Clark.

Freeport LNG Development, L.P.
FLNG Liquefaction, LLC
FLNG Liquefaction 2, LLC
FLNG Liquefaction 3, LLC

Docket No. CP12-509-000

Freeport LNG Development, L.P.

Docket No. CP12-29-000

ORDER GRANTING AUTHORIZATIONS UNDER SECTION 3
OF THE NATURAL GAS ACT

(Issued July 30, 2014)

1. On December 9, 2011, in Docket No. CP12-29-000, Freeport LNG Development, L.P., filed an application under section 3 of the Natural Gas Act (NGA)¹ and the Commission's regulations² requesting authorization to modify previously authorized liquefied natural gas (LNG) facilities to facilitate the import and export of LNG at its existing Quintana Island terminal located near the city of Freeport, in Brazoria County, Texas (Phase II Modification Project).
2. On August 31, 2012, in Docket No. CP12-509-000, Freeport LNG Development, L.P., jointly with FLNG Liquefaction, LLC, FLNG Liquefaction 2, LLC, and FLNG Liquefaction 3, LLC (collectively Freeport LNG), filed an application under section 3 of the NGA and the Commission's regulations, requesting authorization to site, construct, and operate natural gas pretreatment facilities and several interconnecting pipelines and utility lines to support liquefaction and export operations at the Quintana Island terminal (Liquefaction Project).

¹ 15 U.S.C. § 717b (2012).

² 18 C.F.R. pt. 153 (2013); 18 C.F.R. pt. 380.

3. For the reasons discussed in this order, we will authorize the proposed Phase II Modification and Liquefaction Projects. The authorizations are subject to the conditions discussed herein.

I. Background

4. Freeport LNG Development is a Delaware limited partnership with one general partner, Freeport LNG-GP, Inc., which is owned 50 percent by an individual, and 50 percent by ConocoPhillips Company. The four limited partners are Freeport LNG Investments, LLLP; ZHA FLNG Purchaser, LLC; Texas LNG Holdings LLC (a limited liability company owned by The Dow Chemical Company); and Turbo LNG, LLC (owned by Osaka Gas Co., Ltd).

5. FLNG Liquefaction, FLNG Liquefaction 2, and FLNG Liquefaction 3 are Delaware limited liability companies that are wholly-owned subsidiaries of Freeport LNG Expansion, L.P., a Delaware limited partnership which in turn is owned by Freeport LNG Development.

6. On June 18, 2004, the Commission authorized Freeport LNG to site, construct, and operate an LNG import terminal with a vaporization capacity of 1.5 billion cubic feet per day (Bcf/d) on Quintana Island (Phase I Facilities).³ The terminal was authorized for construction in two phases. The existing Quintana Island Phase I facilities comprise: one marine berthing dock with the capability of unloading up to 200 LNG carriers per year; two 160,000 cubic meter full containment LNG storage tanks; LNG vaporization

³ *Freeport LNG Development, L.P.*, 107 FERC ¶ 61,278 (2004), *order granting reh'g and clarification*, 108 FERC ¶ 61,253 (2004). On August 17, 2005, the Commission issued an order authorizing Freeport LNG to increase the diameter of the Phase I sendout pipeline from 36 inches to 42 inches. *See Freeport LNG Development, L.P.*, 112 FERC ¶ 61,194 (2005). On September 26, 2006, the Commission issued an order authorizing Freeport LNG's Phase II expansion of the terminal. *See Freeport LNG Development, L.P.*, 116 FERC ¶ 61,290 (2006) (September 26, 2006 Order). In addition to the Phase I and Phase II authorizations, on May 6, 2009, the Commission issued an order in Docket Nos. CP03-75-003, CP03-75-004, CP05-361-001, and CP05-361-002, amending Freeport LNG's section 3 authorization to allow it to use its existing terminal for the additional purpose of re-exporting foreign-source LNG. In that proceeding, the Commission also authorized Freeport LNG to construct and operate a boil-off gas (BOG) liquefaction system and an LNG truck delivery system. Construction of the two systems has been completed, as have the minor modifications required to enable the re-export of foreign-sourced LNG. *See Freeport LNG Development, L.P.*, 127 FERC ¶ 61,105 (2009).

systems; and associated facilities. The terminal is connected to the Texas intrastate natural gas pipeline grid by Freeport LNG's 9.6 mile-long natural gas sendout pipeline. On July 1, 2008, the Commission granted Freeport LNG's request to place the Phase I facilities in service.

7. The Commission's September 26, 2006 Order authorized an expansion of the terminal's send-out capacity from 1.5 Bcf/d to 4.0 Bcf/d.⁴ The Phase II facilities included an additional marine berthing dock and associated transfer facilities for LNG vessels; new and expanded vaporization systems to increase the vaporization capacity; and an additional LNG storage tank.

8. The September 26, 2006 Order required Freeport LNG to complete construction of the authorized facilities and make them available for service by December 2009. In a series of orders, this deadline was extended until December 31, 2014, in order to accommodate Freeport LNG's revised construction plans, including the two applications considered in this proceeding.⁵ The Phase II facilities have not yet been constructed.

II. Proposals

A. Phase II Modification Project (Docket No. CP12-29-000)

9. Freeport LNG seeks to modify the previously-authorized Phase II Project. Freeport LNG states the Phase II Modification Project would be located entirely within Freeport LNG's existing leased area and would be adjacent to, or within the boundaries of, the existing Phase I facilities at the Quintana Island terminal. Freeport LNG also maintains it would not result in any additional LNG vessel transits to or from the terminal beyond the level considered by the previous authorizations. Freeport LNG would not construct certain components of the previously authorized facilities, including vaporization equipment that was approved to increase the terminal's sendout capacity. Once constructed, the Phase II Modification Project would serve the existing import and re-export operations, as well as the Liquefaction Project, discussed below.

10. The Phase II Modification Project comprises three major components: reorientation of the Phase II dock; modifying the transfer facilities; and modifying the access roads at the terminal. With respect to the still-to-be-constructed Phase II facilities,

⁴ *Freeport LNG Development, L.P.*, 116 FERC ¶ 61,290 (2006).

⁵ Pursuant to 18 C.F.R. § 375.308(w)(4), staff granted extensions of time on June 1, 2009; December 28, 2011; December 5, 2012; and December 17, 2013.

Freeport LNG seeks authorization in this proceeding to construct them together with the Phase II Modification Project.

1. Phase II Dock

11. Under the Phase II Modification Project proposal, LNG vessels would use two single berthing docks for cargo transfers at the Quintana Island terminal. As noted earlier, one dock has already been constructed as part of the Phase I Project; the second dock is one of the facilities proposed to be modified as part of the Phase II Modification Project. Specifically, the orientation of the previously-authorized Phase II dock would be modified to accommodate the maneuvering preferences of the Brazos Pilots Association, but would remain principally located north of and opposite the Phase I dock at the east end of the terminal.

12. The proposed berthing area for the Phase II dock would be approximately 1,340 feet wide at its entrance and approximately 830 feet wide at its base. Freeport LNG would install a 432-foot-long bulkhead consisting of corrugated steel piling. In addition, an approximately 100-foot-long rock breakwater and adjoining 148-foot-long current diversion structure would be installed peripheral to the Phase II dock, extending east from the same northeastern land extremity.

13. The Phase II dock would be sized to accommodate vessels with a maximum length of 980 feet and a cargo capacity of up to 180,000 cubic meters. The jetty platform would be a single-level reinforced concrete beam and slab structure supported on piles and measuring approximately 100-feet-long by 90-feet-wide. It would have a nominal maximum elevation of 25 feet (NAVD). An approximately 30-foot-wide by 45-foot-long extension would support affiliated dock structures such as the shore-mounted gangway and the jetty control building. The surface of the jetty platform would slope landward to drain away rainwater and potential LNG discharges from the waterway.

2. Transfer Facilities

14. Freeport LNG would modify the previously-authorized transfer facilities in two ways: a) reducing the number of LNG transfer arms from four to three; and b) decreasing the diameter of the two LNG transfer pipelines from 32 inches to 26 inches.

3. Access Road System

15. Land access within the Phase II Modification Project site during construction and operation would require development of an approximately 7,000-foot-long plant road system. Approximately 3,820 feet of the plant road system is currently operational but may require some improvement; the remaining 3,180 feet would require new construction. The road system would provide access both to the new marine berthing

dock and to the Liquefaction Project's temporary construction workspace located on the east side of the terminal.

B. Liquefaction Project (Docket No. CP12-509-000)

16. Freeport LNG seeks authorization to site, construct and operate the Liquefaction Project, comprising the Liquefaction Plant, Pretreatment Plant Facilities, and several interconnecting pipelines and appurtenant structures.

1. Liquefaction Plant

17. The Liquefaction Plant would be located on Quintana Island on the west end of the existing terminal and on adjacent industrial-zoned property that was formerly a dredged material placement area. It will comprise three liquefaction trains (Trains 1, 2 and 3) positioned in parallel and occupying a 2,140-foot-long by 860-foot-wide rectangular footprint west of the existing process area. Each train would be capable of producing a nominal 4.4 million metric tons per annum (mtpa) of LNG for export, which equates to a total liquefaction capacity of approximately 1.8 Bcf/d of natural gas.⁶ Each train is capable of producing 4.48 mtpa of LNG; beyond the 4.4 mtpa that would be available for export, the remaining 0.08 mtpa would become boil-off gas (BOG) to be used as fuel gas for the Pretreatment Plant or would constitute "unaccounted for" gas in the liquefaction process.

18. Most of the Train 1 footprint, along with various ancillary facilities (utility area, maintenance/warehouse building, reception building, control room, security building, electric substations, fire suppression foam system, LNG containment sump, standby generator, trucking unloading area, car parking areas) would be located on the existing terminal property, in an area where more than two-thirds of the acreage constituted temporary construction workspace during Phase I construction.

⁶ In orders issued May 17, 2013 and November 15, 2013, the Department of Energy's Office of Fossil Energy (DOE/FE) conditionally authorized Freeport LNG to export up to 1.4 Bcf/d, and 0.4 Bcf/d, respectively, for a total of 1.8 Bcf/d, of LNG by vessel to any country with which the United States has not entered into a Free Trade Agreement (FTA) requiring the national treatment for trade in natural gas. See DOE/FE Order Nos. and 3357. Freeport LNG is currently authorized to export LNG to FTA countries in amounts of 2.8 Bcf/d of natural gas as authorized in DOE/FE Order No. 2913 (February 10, 2011) and Order No. 3066 (February 10, 2012) (each authorizing exports of 1.4 Bcf/d).

19. The remainder of the Train 1 footprint and the entire Trains 2 and 3 footprints, along with various ancillary facilities (electric substations, propane and mixed refrigerant storage area, liquefaction ground flare, truck unloading area, guard house), would be located adjacent to and beyond the western boundary of the existing terminal property. Construction and start-up of Train 1 and of the first pretreatment train at the Pretreatment Plant are expected to take approximately 48 months; completion and startup of Trains 2 and 3 are expected to sequentially follow at 6-9 month intervals.

20. Process cooling for the liquefaction trains would be provided by conventional air coolers (fin fans) arranged in longitudinal rows alongside each train. Each train would have independent electric motor-driven refrigeration compressors and other compressors. The same refrigerant storage would be used for all three trains. New process equipment and structures outside of the Liquefaction Plant would include two blowers (one at each LNG berthing dock); and four BOG compressors (one regular and three booster compressors to be located in tandem in the Phase I process area), together with natural gas piping, nitrogen piping, LNG piping/troughs, and fiber optic cabling between the Liquefaction Plant and process area facilities. In addition to the three trains, aboveground infrastructure would include chemical and utility storage units, pipe racks and pipes, LNG troughs and an associated sump.

2. Pretreatment Plant Facilities

21. The Pretreatment Plant will remove water, carbon dioxide, trace constituents, and natural gas liquids (NGL) components from domestic natural gas before the gas is delivered to the liquefaction plant. The Pretreatment Plant would be located about 2.5 miles northeast of Freeport, Texas and 2.5 miles south of Quintana Island. The plant would occupy an operational footprint of approximately 113.4 acres in the eastern sector of a 276.3 acre property for which Freeport LNG states it has secured a purchase option. New access roads (a 400-foot-long and 450-foot long road) will connect the plant to County Road 690 on the east and an existing private road will be modified and extended to connect the plant to State Highway 332 on the west. An existing private road would be modified and extended throughout the property to provide site access from the west.

22. In addition, Freeport LNG proposes several pipelines and utility lines that would interconnect with its existing 9.6-mile-long, 42-inch-diameter sendout pipeline, which extends from the Stratton Ridge meter station to the Quintana Island terminal (referred together as the Pipeline/Utility Line system). These facilities include a 5.0-mile-long, 12-inch diameter BOG feed gas line from the terminal to the Pretreatment Plant; a 9.6-mile long nitrogen pipeline; a 6.2-mile-long NGL pipeline; and a 0.51-mile-long, 42-inch-diameter inflow pipeline from the Pretreatment Plant that would tie in with the existing pipeline. After treatment, the gas would be run through an on-site compressor to increase its pressure to approximately 1,100 psig and would then be delivered back into the existing Freeport Pipeline via a 42-inch-diameter outflow. There will be

modifications of an existing meter station and construction of appurtenant facilities to allow bi-directional flow on the Freeport Pipeline.

23. Freeport LNG states that it has entered into long-term liquefaction agreements with Chubu Electric Power Company, Inc., Osaka Gas Co., Ltd., BE Energy Company, SK E&S LNG, LLC, and Toshiba Corporation.

III. Public Notice, Interventions, Comments, and Protests

24. Notice of applications for the Phase II Modification Project and the Liquefaction Project were published in the *Federal Register* on December 29, 2011 (76 Fed. Reg. 81,295) and September 19, 2012 (77 Fed. Reg. 58,118), respectively. In Docket No. CP12-509-000, timely motions to intervene were filed by: Tres Palacios Gas Storage LLC; ConocoPhillips Company; Daniel Rucker; Harold Doty;⁷ Sierra Club, and Galveston Baykeeper. Sierra Club's motion to intervene included a protest and comments.

25. In Docket No. CP12-29-000, timely motions to intervene were filed by: Commodore Cove Improvement District; Robin Chapman; Karen Robertson; Robert M. Lemmond; Floyd W. Winkler,⁸ Gerald Propst; Donna Propst; Alphonse Schwenke; Anita Tiano; Larry Bontekoe individually and on behalf of Coastal Properties L.P.; Richard Linn; Robert Tiano; Robin Rio; and Henry Clayton. Untimely motions to intervene were filed by: Macquarie Energy LLC; David Cole; and Annette Hausman.

26. Timely, unopposed motions to intervene are granted by operation of Rule 214(c) of the Commission's Rules of Practice and Procedure.⁹ We find that the parties filing untimely motions to intervene have demonstrated an interest in this proceeding, and further find that granting intervention at this stage of the proceeding will not cause undue delay or disruption or otherwise prejudice the applicant or other parties.¹⁰ Accordingly, we will grant the late motions to intervene.

⁷ Mr. Doty filed separate motions to intervene and comments on October 27, 2013, July 15, 2013, and August 18, 2013.

⁸ Mr. Winkler filed another motion to intervene on February 19, 2012.

⁹ 18 C.F.R. § 385.214(c) (2013).

¹⁰ 18 C.F.R. § 385.214(d) (2013).

IV. Discussion

27. Because the proposed LNG liquefaction facilities and modified terminal facilities will be used to accommodate the export and import of natural gas to and 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.¹¹ While section 3 provides that applications under that section shall be approved if the proposal “will not be inconsistent with the public interest,” section 3 also provides that an application may be approved “in whole or in part . . . [w]ith such modification and upon such terms and conditions as the Commission may find necessary or appropriate.”¹²

28. Section 311(c) of the Energy Policy Act 2005 (EPAAct) added 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, or operate an LNG terminal on: (1) 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 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.

29. Sierra Club asserts that exports of domestic natural gas from Freeport LNG’s proposed facilities will cause economic harm by raising domestic gas prices and eliminating domestic jobs. It challenges Freeport LNG’s reliance on several economic analyses submitted to DOE in its commodity export applications, and asserts that

¹¹ 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. 42 U.S.C. § 7151(b) (2006). 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 new facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry for imports or exit for exports. The Secretary’s current delegation of authority to the Commission relating to import and export facilities was renewed by the Secretary’s DOE Delegation Order No. 00-044.00A, effective May 16, 2006. Applications for authorization to import or export natural gas (the commodity) must be submitted to DOE.

¹² 15 U.S.C. § 717b(a). For a discussion of the Commission’s authority to condition its approvals of LNG facilities under section 3 of the NGA, *see, e.g., Distrigas Corporation v. FPC*, 459 F.2d 1057, 1063-64 (D.C. Cir. 1974), *cert. denied*, 419 U.S. 834 (1974), and *Dynegy LNG Production Terminal, L.P.*, 97 FERC ¶ 61,231 (2001).

available empirical data show that “the real economic effects of increasing gas production are far more limited” than Freeport claims.¹³

30. Sierra Club also argues that because Freeport LNG’s application claims benefits from its proposal, the Commission must also consider the associated costs, including the “negative economic consequences and significant environmental harm.”¹⁴ Sierra Club asserts that such an analysis would warrant a finding that Freeport LNG’s proposal is contrary to the public interest.¹⁵

31. We decline to address the claims raised by either the Sierra Club or Freeport LNG as they concern impacts associated with the exportation of the commodity natural gas, rather than the proposals before the Commission. We will limit our review to impacts associated with the Freeport LNG facilities used to facilitate the exports. As noted above, the Commission has delegated authority to approve or disapprove the construction and operation of particular facilities, the site at which such facilities shall be located, and with respect to natural gas that involves the construction of new domestic facilities, the place of entry for imports or exit for exports.

32. However, the Secretary has not delegated to the Commission authority to approve or disapprove the import or export of the commodity itself, nor is there any indication that the Secretary’s delegation authorized the Commission to consider the types of issues raised by the Sierra Club or Freeport LNG.¹⁶ Indeed, as Sierra Club notes, it raised these same concerns in Freeport LNG’s export authorization proceeding, which DOE thoroughly considered in finding that Freeport LNG’s requested export authorization will not be inconsistent with the public interest.¹⁷

¹³ Sierra Club October 3, 2012 Motion to Intervene at 56.

¹⁴ Sierra Club October 3, 2012 Motion to Intervene at 60.

¹⁵ *Id.*

¹⁶ See Order Approving Point of Entry for Importation of Natural Gas, *National Steel Corp.*, 45 FERC ¶ 61,100, at 61,333 (1988), which states: “The [Office of Fossil Energy], pursuant to its exclusive jurisdiction, has approved the importation with respect to every aspect of it except the point of importation...The Commission’s authority in this matter is limited to consideration of the place of importation, which necessarily includes the technical and environmental aspects of any related facilities.”

¹⁷ DOE/FE concluded that, on balance the potential negative impacts of Freeport LNG’s proposed exports “are outweighed by the likely net economic benefits and by

(continued...)

33. Freeport LNG's and Sierra Club's competing claims with respect to purported beneficial and adverse impacts of natural gas exports have no bearing in this proceeding. As discussed in a recent proceeding, the Commission's review is limited to the economic and environmental impacts of the proposal before us.¹⁸ As discussed below in the environmental section of this order, there is no connection between the projects before us and any specific, quantifiable induced production. While the EIS considered the cumulative effects on, among other things, reasonably foreseeable future shale production within the project area, Sierra Club fails to identify any future production connected to the Freeport LNG proposals.

34. The Commission has authorized the siting, construction, and operation of Freeport LNG's existing terminal on Quintana Island through a series of orders, and the facilities have been in operation since 2008. In conditionally granting Freeport LNG long-term authorization to export LNG, DOE found that there was substantial evidence of economic and other public benefits such that the authorization was not inconsistent with the public interest. We recognize DOE's public interest findings in this order.

35. Further, we concur with the findings set forth in the June 2014 final environmental impact statement (EIS), which concludes that construction and operation of the projects, while resulting in some significant and unavoidable impacts to residents of the Town of Quintana due to construction noise and traffic, will be temporary, and minimized with certain conditions set forth in this order. Other adverse impacts would be reduced to less than significant impacts with the implementation of mitigation measures set forth in this order. Therefore, as discussed below, we find that, subject to the conditions imposed in this order, Freeport LNG's Phase II Modification Project and Liquefaction Project are not inconsistent with the public interest.

other non-economic or indirect benefits," and attached terms and conditions to its authorization "to ensure that the authorization issued by this Order is not inconsistent with the public interest..." See DOE/FE Order No. 3357 at 73-140; 148-157; 154 (November 15, 2013).

¹⁸ See *Cameron LNG, LLC*, 147 FERC ¶ 61,230 (2014) (Cameron LNG); see also *Sabine Pass Liquefaction, LLC and Sabine Pass LNG, L.P.*, 139 FERC ¶ 61,039, n.35 (2012) (scope of Commission's review is "limited to consideration of the impacts related to the place of importation [or export], which necessarily includes the technical and environmental aspects of any related facilities").

V. Environmental Analysis

A. Pre-Filing Review

36. On January 5, 2011, staff granted Freeport LNG's request to use the Commission's pre-filing environmental review process for its Liquefaction Project and assigned pre-filing Docket No. PF11-2-000.

37. Prior to filing its application for the Phase II Modification Project, Freeport LNG submitted to the Commission, on November 18, 2011, a request for a determination by the Director of the Office of Energy Projects (OEP) that the Phase II Modification Project would not be subject to the Commission's otherwise mandatory Pre-Filing Process. On December 6, 2011, the Director of the OEP issued a Letter Order finding that the proposal to modify the authorizations granted in the September 26, 2006 Order would not be subject to the Commission's pre-filing procedures and review process. The proposed modifications would not increase throughput requiring additional tanker arrivals, change the purpose of the facility, or involve significant state and local safety considerations that had not been previously addressed. Freeport LNG filed its application for the Phase II Modification Project on December 9, 2011, in Docket No. CP12-29-000.

38. On August 11, 2011, the Commission issued a Notice of Intent to Prepare an Environmental Assessment for the Planned Liquefaction Project and Request for Comments on Environmental Issues and Notice of Public Scoping Meeting (NOI). The NOI was mailed to interested parties, including federal, state, and local officials; agency representatives; conservation organizations; Native American tribes; local libraries and newspapers; and property owners in the area. On September 8, 2011, Commission staff conducted a scoping meeting in Lake Jackson, Texas to provide the public an opportunity to learn about the Liquefaction Project, the Commission's processes, and to provide comments on the environmental issues to be addressed. Four members of the public provided comments at the scoping meeting.

39. After issuance of the NOI, Freeport LNG proposed changes to the facilities and the scope of the environmental review changed such that staff determined that review of the Liquefaction Project would require a more comprehensive EIS. On July 19, 2012, the Commission issued a *Supplemental Notice of Intent to Prepare an Environmental Impact Statement for the Planned Liquefaction Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meeting* (Supplemental NOI). Staff determined that the Phase II Modification Project (CP12-29-000) was an interconnected action and would be analyzed in a single EIS with the Liquefaction Project. This Supplemental NOI was mailed to interested parties, including federal, state, and local officials; agency representatives; conservation organizations; Native American tribes; local libraries and newspapers; and property owners in the area.

40. On August 9, 2012, staff conducted a second public scoping meeting in Lake Jackson to provide an opportunity for the public to learn more about the newly proposed modifications to the Liquefaction Project and to provide comments on environmental issues to be addressed in the EIS. Twenty four people commented at the meeting.

41. The Supplemental NOI also established a deadline of August 20, 2012, for interested entities to submit comments on the proposed projects, although the Commission continued to receive and accept comments filed after the deadline. Prior to issuance of the draft EIS, a total of 190 comment letters and two petitions (a petition in opposition signed by 323 people and a second petition in opposition signed by 57 landowners from Quintana Island) were filed in the dockets. Major issues raised by the public included alternative locations, air quality, noise, socioeconomic concerns (traffic, housing), water quality, and public safety. In response to comments received, Freeport LNG revised the initially-proposed site of the Pretreatment Plant to the current location.

B. Application Review

42. After applications for the projects were filed, Commission staff evaluated the potential environmental impacts of the proposed facilities in a draft EIS in accordance with the National Environmental Policy Act of 1969 (NEPA).¹⁹ The U.S. Army Corps of Engineers (USACE), the Environmental Protection Agency (EPA), Department of Energy (DOE), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), and U.S. Department of Transportation (DOT) participated as cooperating agencies in the preparation of the EIS.

43. On March 14, 2014, Commission staff issued a draft EIS that addressed the substantive issues raised during the scoping period.²⁰ A 45-day public comment period followed issuance of the draft EIS. The draft EIS was mailed to the environmental mailing list. Commission staff held a public comment meeting on the draft EIS on April 16, 2014, in Lake Jackson and Commission staff placed transcripts of the public comment meeting into the public record. Twenty-two individuals provided oral comments.

¹⁹ 42 U.S.C. §§ 4321 *et seq.* (2006). *See* 18 C.F.R. pt. 380 (2013) for the Commission's NEPA-implementing regulations.

²⁰ The Commission published notice of the draft EIS in the *Federal Register* on March 24, 2014. 79 Fed. Reg. 15,989 (2014).

44. Issues identified at the public comment meeting included concerns about air pollution (including air toxics, greenhouse gases, deposition impacts and compliance with the air quality standards), safety and lack of an emergency response plan, construction traffic, noise, dust, lack of housing for construction workers, visual impacts, impacts on property values, water use and Freeport LNG's source of water, land use impacts, ability to safely build the facility on dredge spoils, impacts on the historic Town of Quintana, expanding the scope of the cumulative impact analysis and alternatives analysis, recreational impacts, noxious odors, and the positive impacts from job creation.

45. In addition to the public comment meeting, Commission staff held a public site visit on April 17, 2014, with residents in the areas of Hide-Away on the Gulf, Turtle Cove, and Quintana Island. Landowners identified areas where public viewsheds and ambient noise levels may be affected by construction and operation of the Liquefaction Plant and the Pretreatment Plant. Other specific concerns raised by the residents included water withdrawals from the local water supply, air quality issues, evacuation routes and potential alternative sites. Stakeholders submitted 104 comment letters on the draft EIS.

46. On June 16, 2014, Commission staff issued a final EIS for the Phase II Modification Project and the Liquefaction Project.²¹ The EIS addresses all substantive comments received on the draft EIS.²² The EIS was mailed to the same parties as the draft EIS, as well as to those who commented on the draft EIS.²³ The EIS addresses geology; soils; water resources; wetlands; vegetation; wildlife and aquatic resources; threatened, endangered, and other special status species; land use, recreation, and visual resources; socioeconomics; cultural resources; air quality and noise; safety; cumulative impacts; and alternatives.

47. The Commission received two comment letters on the EIS, expressing concerns over emergency response situations at the Pretreatment Plant and Quintana Island Terminal, as well as socioeconomic and air emissions impacts. The comments are discussed in more detail below.

48. The EIS concludes that the project will result in mostly temporary and short-term environmental impacts. While the EIS concludes that the projects will result in some adverse environmental impact, it clarifies that the majority of these impacts will be

²¹ The Commission published notice of the final EIS in the *Federal Register* on June 20, 2014. 79 Fed. Reg. 35,345 (2014).

²² Appendix L of the final EIS.

²³ The distribution list is provided in Appendix A of the final EIS.

reduced to less-than-significant levels with the implementation of Freeport LNG's proposed mitigation measures and staff's recommendations. The EIS concludes that there will be significant and unavoidable impacts on residents of the Town of Quintana due to construction noise and construction traffic. The mitigation measures recommended in the EIS are included as environmental conditions in Appendix A of this order. The major environmental issues addressed in the EIS include impacts on: waterbodies, socioeconomic impacts (traffic, housing), public safety, air quality, noise and vibration, and the issues raised in comments on the draft EIS.

C. Major Environmental Issues Addressed in the EIS

1. Waterbodies

49. The Projects will require dredging along the Freeport Harbor Channel and Intracoastal Highway. Approximately 1.3 million cubic yards of material will be removed to expand the existing berthing dock, construction docks, firewater intake, and to modify the previously-approved Phase II dock. To minimize impacts associated with dredging, Freeport LNG developed a Dredging Plan that outlines procedures to minimize the spread of turbidity in surface waters. The construction of the projects will involve crossing and/or work within 28 waterbodies. To minimize impacts on surface waters, Freeport LNG will adhere to FERC's Upland Erosion Control, Revegetation, and Maintenance Plan, and FERC's Wetland and Waterbody Construction and Mitigation Procedures herein referred to as Freeport LNG's Procedures. In addition, Freeport LNG will adhere to its Spill Prevention, Control and Countermeasure Plan (SPCC Plan), and will use horizontal directional drilling (HDD) technology to entirely avoid construction impacts on six waterbody crossings along the Pipeline/Utility Line System route.

50. The EIS concludes that discharge of ballast water in the terminal's berthing area could provide a pathway for the introduction of exotic aquatic nuisance species into U.S. coastal waters.²⁴ However, operation of the Liquefaction Project will not result in any increase in the maximum number of vessel visits considered under previous Commission authorizations.²⁵ Freeport LNG will be required to comply with strict U.S. Coast Guard regulations over the discharge of ballast water designed to prevent introduction of exotic species into U.S. waters. Given the above mitigation, the EIS concludes that impacts on waterbodies will not be significant.

²⁴ Freeport EIS pages 4-34-35.

²⁵ Freeport LNG has indicated in the July 11, 2014 filing that they would only require 250 ship-calls per year for export.

2. Socioeconomics

51. As stated in the EIS, the Liquefaction Project will require, during the peak construction period, more than 3,000 temporary construction workers, while operation of the Liquefaction Project facilities will require the addition of about 163 permanent workers, significantly greater than that required for the original Quintana Island terminal.²⁶ With existing constraints on housing, it will be difficult for workers to find long term housing and there will be increased congestion of roadways near the Projects. However, there are sufficient resources (i.e., emergency services, roadway capacity, school system and other municipal services) to address both the temporary influx of workers who may want to move to the area, and the permanent workers to fill the 163 job openings.

52. Marie Oldham questioned whether the EIS considered the impact of the Projects on disadvantaged communities. Section 4.8.7 of the EIS addresses the impacts to minority and economically disadvantaged communities near the Projects, and concluded that the Projects would not have a significant adverse impact on the Brazoria County communities.

53. Appendix I of the EIS contains Freeport LNG's Transportation Management Plan, which provides specific mitigation measures it will carry out to help control and minimize the impacts of construction traffic to the extent possible. Nearby residents, especially those in the Town of Quintana, will be affected by the large increase in construction and worker vehicle traffic. The EIS concludes that construction traffic will result in significant and unavoidable impacts on the residents of the Town of Quintana during construction of the Liquefaction Plant and Phase II Modification Projects.²⁷ We concur with the EIS's findings that, for the wider Brazoria County, Freeport LNG's Traffic Mitigations Plan will mitigate these impacts and they will therefore not be significant. For other socioeconomic factors, the EIS concludes that the construction and operation of the Projects will not have a significant adverse impact on local public services, property values, and disadvantaged communities.

3. Safety

54. The EIS evaluates the safety of the proposed Pipeline/Utility Line System and LNG facilities associated with the projects, including a review of the cryogenic design of the facilities proposed for liquefaction, related facilities, and safety systems. Based on

²⁶ Freeport EIS pages 4-117-118.

²⁷ Freeport EIS pages 4-126-130.

the Commission staff's technical review of the preliminary engineering designs, the EIS concludes that sufficient safeguards will be included in the facility designs to mitigate the potential for an incident that may damage the facility, injure operating staff, or impact the safety of the off-site public.

55. The DOT reviewed the data and methodology Freeport LNG used to determine the design spills based on the flow from various leakage sources, including piping, containers, and equipment containing hazardous liquids. In a letter to the Commission dated December 31, 2013, DOT stated it had no objection to Freeport LNG's methodology for determining the candidate design spills to establish the required siting for its proposed facilities. The U.S. Coast Guard reviewed the proposed facilities and stated that a Letter of Intent or a revision to the Water Suitability Assessment was not required.

56. To ensure safety and reliability, the EIS identifies specific recommendations for the Projects to be addressed by Freeport LNG prior to initial site preparation, prior to construction of the final design, prior to commissioning, prior to the introduction of hazardous fluids, and prior to commencement of service. This includes a recommendation for a detailed Emergency Response Plan that will address on-site and off-site emergency response for both the LNG terminal site and the Pretreatment Plant. Based on the review of Freeport LNG's siting analyses, the EIS concludes that potential hazards from the projects will not have a significant impact on public safety.

57. Jeff Pynes, City Manager of the City of Freeport, filed comments expressing concerns over how emergency response situations will be handled at the Pretreatment and terminal sites. Ms. Oldham also filed comments expressing concerns over what she deems the company's lack of communication with local emergency responders and the lack of an emergency response plan for over-water leaks or explosions. Both comments also raised concerns over the planning needed to ensure the evacuation of thousands of recreational users from Quintana Island. Environmental Condition 24 to this order requires that, prior to initial site preparation, Freeport LNG must prepare an Emergency Response Plan in consultation and coordination with all incident response organizations or personnel responsible for emergency response-related actions at each site. We expect detailed evacuation plans to be developed for the potential evacuations considered necessary by the emergency responders, with consideration of the emergency responders' abilities and identification of any additional resources or infrastructure needed. Environmental Condition 25 requires Freeport LNG to provide a cost-sharing plan for any necessary emergency management resources.

58. Ms. Oldham also questions Freeport LNG's plans to install vapor fences at the terminal site, but not an earthen berm that she states may deflect a potential explosion upward. As indicated in Section 4.10.3 of the EIS, Freeport LNG's proposed multiple layers of system-wide safeguards minimize the potential for a hazardous scenario to develop into an event that could potentially impact the off-site public. In addition, the

analyses in sections 4.10.5.2 through 4.10.5.6 in the EIS demonstrate that the design of the Liquefaction Plant would meet the USDOT safety standards set forth in 49 C.F.R. Part 193.

4. Air Quality

59. Air emissions during the construction of the proposed projects will consist of tailpipe emissions (due to fossil fuel combustion from equipment and vehicles) and fugitive dust (ground and roadway dust). The EIS concludes²⁸ that these emissions will be temporary and may vary in intensity and composition over the 4.5 years of construction. The construction emissions may affect air quality in the region and cause elevated dust and pollutant levels in close proximity to residents of the Town of Quintana Island and near the Pretreatment Plant.

60. In its original applications for the Freeport LNG Import Project, Freeport LNG projected 200 LNG ship-calls per year. In conjunction with its Phase II Project, Freeport LNG projected an additional 200 LNG ship-calls, for a total of 400 LNG ship-calls. Freeport LNG did not project there would be any additional ship traffic associated with its Liquefaction Project. Accordingly, the EIS analyzed impacts from the 400 LNG ship-calls per year.

61. We note, however, that on July 11, 2014, Freeport LNG indicated that it had revised its projections of LNG ship-calls to its proposed modified terminal facilities from the total of 400 originally projected in association with Phase I and II Projects, to a new total of only 250 LNG ship-calls per year.

62. The Commission issued its final General Conformity Determination for the original Freeport LNG Import Project on June 10, 2004, which included emissions from 200 LNG ship-calls per year.²⁹ We are including the additional 50 LNG ship-calls above those included in the original Freeport LNG Import Project in the General Conformity analysis for the combined Liquefaction Project and Phase II Modification Projects.³⁰ In

²⁸ Freeport LNG EIS pages 4-217-223.

²⁹ A General Conformity Analysis is required when a federal action would generate emissions exceeding conformity threshold levels of pollutants for which an air basis is designated as nonattainment. A federal agency cannot approve or support activity that does not conform to an approved State Implementation Plan (SIP). *See* 40 C.F.R. § 93.153).

³⁰ 40 C.F.R. 93.157 (a).

the EIS, Commission staff included recommended condition 79 that Freeport LNG file specific information that would assist Commission staff in preparing a General Conformity Determination for the combined Liquefaction and Phase II Modification Project. The information Freeport LNG filed on July 11, 2014, contained the data identified in recommended condition 79 in the EIS, including the written concurrence from the Texas Council on Environmental Quality that the emissions from construction and operation would be in conformance with the Texas State Implementation Plan. Therefore, we are including a revised Environmental Condition 79 to this order which directs Freeport LNG to notify Commission staff in the event more than 250 LNG ship-calls occur per year for the life of the facility. This will allow Commission staff to timely prepare a revised General Conformity analysis as required under 40 C.F.R. 93.157(c).

63. Ms. Oldham also commented on the emissions from operation of the Liquefaction Plant and LNG ship emissions, as well as General Conformity concerns. As noted above, the EIS addresses impacts from the Pretreatment Plant, Liquefaction Plant, and ship emissions in the cumulative air quality model and determined that the impacts from the Projects would not be significant. As also noted, the Texas Council on Environmental Quality concurred that the emissions from construction and operation of the Projects would be in conformance with the Texas State Implementation Plan, and that the Commission expects to issue the draft General Conformity Determination shortly.

64. Air emissions from the operation of the Liquefaction and Pretreatment Plant's stationary sources will be minimized by using a combination of electric-powered equipment, high-efficiency equipment, state of the art emission controls, burning natural gas, and using proper maintenance and operating procedures. In addition, Freeport LNG will obtain air quality permits from the EPA and the Texas Council on Environmental Quality for the Liquefaction Plant and the Pretreatment Plant. The ship emissions associated with the proposed projects will be minimized by the use of natural gas as the primary fuel in the LNG boilers and engines, and the use of low-sulfur marine diesel in the tug vessels.

65. As part of the Texas Council on Environmental Quality permitting process, Freeport LNG used an air quality model to estimate the air quality impacts from the facility. The model demonstrated that air quality impacts from the facilities and surrounding industrial facilities will not exceed the National Ambient Air Quality Standards (NAAQS). Commission staff updated this air quality model using revised emissions from the LNG vessels and escort vessels. The EIS concludes that, although cumulative impacts from all the industrial facilities in the area combined with operation of the Projects will exceed the NAAQS for particulate matter less than 2.5 micrometers, Freeport LNG's facilities are not the cause of the exceedance. Therefore, the EIS concludes that impacts on air quality will not be significant.

5. Noise

66. The EIS states that residents in the immediate vicinity of the construction activities at the Pretreatment and Liquefaction Plant will experience an increase in noise during the 48-54 months of construction, but this will vary in intensity during the construction period and be confined to daytime hours. Certain construction activities at the Liquefaction Plant, such as HDD work, dredging, and pile driving, will have 24-hour or impulse noise impacts, and result in greater annoyance to Quintana Island residents. The EIS states that noise from pile driving at the Liquefaction Plant will be distinctly heard by Quintana Island residents with noise increases up to 21 decibels on the A-weighted scale (dBA) over background noise levels, and above 55 dBA for up to 3 years. Dredging activities have the potential for 24-hour per day elevated noise impacts sustained over approximately 120 days. To address noise concerns associated with both pile driving and dredging, Environmental Condition 80 requires Freeport LNG to submit a Construction Noise Mitigation Plan that outlines measures to reduce dredging noise to no greater than 55 A-weighted day-night averaged decibels (dBA L_{dn}) at all Noise Sensitive Areas (NSA), and includes mitigation measures to reduce pile driving noise to no greater than 10 dBA over background levels.

67. However, the pile-driving noise represents a doubling of existing ambient noise over a three year period, and will be a significant and unavoidable adverse impact on the residents of the Town of Quintana during construction. Although we received no comments on the final EIS regarding noise impacts, we note that Freeport LNG has undertaken a number of steps to mitigate the impacts to the residents of Quintana Island, including offering to purchase landowner's homes and offering compensation for the remaining landowners for each year of construction.

68. HDD noise for the pipeline construction will elevate noise levels at several NSAs; however, at locations where noise will be above 55 dBA L_{dn} , Freeport LNG committed to install mitigation to reduce noise to below 55 dBA L_{dn} where technically feasible.

69. Operation of the Pretreatment Plant will increase overall noise for nearby residents; however, the noise attributable to the Pretreatment Plant will remain below 55 dBA L_{dn} at the NSAs. Operational noise at the Liquefaction Plant will remain below 55 dBA L_{dn} , except in some locations. However, Freeport LNG has purchased properties to address this issue. Environmental Conditions 81, 82, and 83 ensure that operational noise levels at both the Pretreatment and Liquefaction Plants do not reach significant levels.

70. The Liquefaction Plant, ship loading, and LNG vessel movement will be another source of operational noise for residents on Quintana Island. The EIS concludes that LNG vessel movement noise impacts will remain below a noise level of 55 dBA L_{dn} , and that the LNG vessel transit and LNG transfer will not result in any significant vibration

impacts. In addition, Freeport LNG has committed to monitor noise to ensure that impacts from ships will not be significant.

6. Cumulative Impacts

71. As detailed in each section of the EIS, most impacts on each resource affected by the Projects will not be significant. However, the large number of workers at the Quintana Island terminal, the extended construction period, and large area of construction will result in aggregate adverse noise and traffic impacts on residents of Quintana Island.

72. The EIS concludes that Freeport LNG's Projects will not have any significant cumulative impacts with other projects in the area. Any potential cumulative effects will be precluded by the degree of geographic separation between the various projects, which is also the case with visual impacts. Construction and operation of the projects along with other facilities will produce impacts additive to the existing air quality problems in Brazoria County; however the EIS determined that the Projects will not be the primary cause of any violation of the NAAQS.

73. With respect to socioeconomic factors, Freeport LNG's Projects will contribute to cumulative impacts as a result of the increased demand for housing for construction workers in the nearby area and there will be associated additional burdens on road usage and public services. Some socioeconomic impacts on the Town of Quintana will be positive such as the additional tax base. Overall, the EIS concludes that cumulative impacts associated with Freeport LNG's Projects should not result in significant additional burdens on public services, housing, or other socioeconomic factors in Freeport, Brazosport, and across Brazoria County.

74. Sierra Club claims that the draft EIS failed to consider the cumulative impacts from all proposed U.S. export terminals, as they will "impact the same resources, through the same effects, as the Freeport project," and that a cumulative consideration of those other proposals in a cumulative impacts analysis is particularly important, as they may have "synergistic effects on, for example, gas price increases...."³¹

75. We disagree. Sierra Club seeks a programmatic EIS for a program that is not before the Commission. The Council on Environmental Quality (CEQ) regulations implementing NEPA state that major federal actions for which an EIS may be required include "...programs, such as a group of concerted actions to implement a specific policy

³¹ Sierra Club May 5, 2014 Comments at 55-56.

or plan; and systematic and connected agency decisions allocating agency resources to implement a specific statutory program...”³²

76. The Freeport LNG Project does not meet this definition for broad proposals. The proposals concern modifications to previously authorized facilities at the existing Quintana Island terminal, and development of new liquefaction facilities and LNG export capacity. Moreover, the Commission considers proposed projects on their own merits, based on the facts and circumstances specific to each proposal. We conclude that the EIS properly fulfills its purpose, which is to disclose the potential environmental impacts of the Freeport LNG Project, and to set forth measures to mitigate, minimize, or eliminate any potential impacts.

7. Indirect Impacts

77. Sierra Club also asserted that the draft EIS was deficient because it failed to consider the indirect effects of induced gas production associated with the projects. We disagree. The CEQ regulations state that “indirect effects” of a proposed action are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”³³ However, no specific shale-play has been identified as a source of natural gas for the project, nor has Sierra Club identified any. Moreover, the purpose of the Projects is not to facilitate additional shale production, which may occur for reasons unrelated to the Project and over which the Commission has no jurisdiction.³⁴

78. Even if, for the sake of argument, the Commission agreed that the Liquefaction Project will cause induced production, such production is not “reasonably foreseeable” as contemplated by the CEQ regulations. It is speculative as to where the gas processed by the Projects will originate, much less where the wells, gathering line locations and the potential associated environmental impacts will occur. Accordingly, the level of analysis

³² 40 C.F.R. § 1508.18(b)(3) (2013).

³³ 40 C.F.R. § 1508.8(b) (2013). In this vein, the EIS considered, for example, the indirect impacts associated with construction and operation of the Phase II Modification Project on each jurisdictional waterbody at and adjacent to the Quintana Island terminal, including potential changes in flow regime that occur beyond the construction workspace, are secondary in nature, and are not included in temporary or permanently impacted acreages. *See* EIS at 4-40.

³⁴ *Coalition for Responsible Growth and Resource Conservation v. FERC*, 485 Fed. Appx. 472 (2nd Cir. June 12, 2012).

commenters seek would require the Commission to engage in speculative analysis that would not provide meaningful information to inform our decision here.³⁵

8. Alternatives

79. The EIS analyzes a number of alternatives to the Freeport LNG Liquefaction Project and Phase II Modification Project, including the No Action alternative, system alternatives, route alternatives, and aboveground facility site alternatives.

80. The EIS concludes that the No Action Alternative is not viable as it would not enable Freeport LNG to provide U.S. natural gas producers with new access to global gas customers and meet Freeport LNG's contractual obligations.

81. For the Phase II Modification Project, the EIS concludes that the location, design, and purpose are wholly dependent on the existing plant facilities and operations at the Quintana Island terminal; therefore, other geographically separate sites beyond the terminal could not satisfy the operational flexibility requirements.

82. The EIS evaluates other proposed LNG export facilities on the West Coast, Gulf Coast, and East Coast of the United States and whether these could be considered system alternatives. In all cases we found that these alternatives do not address the Liquefaction Project's purpose and would not offer any significant environmental advantage.

83. The EIS addresses the possibility of expanding the size of another proposed LNG export terminal to provide Freeport LNG's desired export capacity. However, this alternative would involve further impacts at those sites such as: construction of additional liquefaction infrastructure plus the potential need for expanded docking facilities. Hence, the environmental impacts would not be significantly different than those that would occur as a result of Freeport LNG's proposal.

84. The EIS also evaluates site alternatives for the components of the Liquefaction Project, but did not find any viable alternatives. Siting of the Liquefaction Plant was

³⁵ See *N. Plains Res. Council v. Surface Transp. Board*, 668 F.3d 1067, 1078 (9th Cir. 2011) (agencies not required to engage in speculative analysis or do the impractical, if not the impossible, if not enough information is available to permit meaningful consideration). See also *Habitat Education Center v. U.S. Forest Service*, 609 F.3d 897 (7th Cir. 2010) (an environmental impact would be considered too speculative for inclusion in the NEPA document if at the time the document is drafted the impact cannot be described with sufficient specificity to make its consideration useful to a reasoned decision maker).

dictated by the need to be close to the existing offloading areas, LNG storage tanks, docking area, and other existing LNG infrastructure at the Quintana Island terminal. The proposed siting makes maximum use of the available areas within the existing Quintana Island terminal.

85. The EIS analyzes alternative locations for the Pretreatment Plant. Ten alternative sites were deemed unsuitable due to site constraints and environmental impacts. One alternative site was deemed to be suitable; however, based on comments from residents regarding the lack of a suitable evacuation route in case of emergency at the alternative site, and concerns about noise, air emissions, water discharges, materials storage, and flood protection, the EIS concludes that the alternative would not provide a significant environmental advantage over the proposed site.

86. The EIS also determines that the proposed route of the Pipeline/Utility Line System was acceptable. The main alternative siting criteria were the functional interdependency and geographic locations of the proposed process facilities (Liquefaction Plant and Pretreatment Plant), Freeport LNG's existing natural gas sendout pipeline, and the existing sendout pipeline meter station at Stratton Ridge. The Liquefaction Plant, Pretreatment Plant, and Stratton Ridge Meter Station represent fixed receipt or delivery points for the natural gas transported by the sendout pipeline and utilized in the liquefaction process. The existing sendout pipeline route constitutes the preferred route as it follows an existing right-of-way and minimizes environmental impacts.

D. Environmental Conclusions

87. We have reviewed the information and analysis contained in the record, including the EIS, regarding the potential environmental effects of the Projects. Based on our consideration of this information and the discussion above, we agree with the conclusions presented in the EIS and find that approval of the projects, if constructed and operated as described in the EIS, is an environmentally acceptable action. Thus, we are including the environmental mitigation measures as conditions to the authorizations granted by this order for the proposed Projects.

88. 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 regulated entities 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.³⁶

VI. Conclusion

89. The Commission on its own motion received and made part of the record in this proceeding all evidence, including the application(s), as supplemented, exhibits thereto, submitted in support of the authorizations sought herein, and all comments filed, and upon consideration of the record,

The Commission orders:

(A) Freeport LNG is authorized under section 3 of the NGA to construct and operate the Phase II Modification Project including the not-yet built facilities in its Phase II Project at its existing Quintana Island terminal located on Quinta Island, Brazoria County, Texas, subject to conditions and as more fully described in this order and in its application.

(B) Freeport LNG is authorized under section 3 of the NGA to site, construct, and operate natural gas liquefaction and export facilities in Brazoria County, Texas, subject to conditions and as more fully described in this order and in its application.

(C) Freeport LNG shall construct and make available for service the facilities authorized within five years from the date of this order as described in section 157.20(b) of the Commission's regulations.

(D) The authorizations granted in Ordering Paragraphs (A) and (B) above are conditioned on Freeport LNG's compliance with the environmental conditions included in the Appendix to this order, and the conditions included in the Appendix to the September 26, 2006 Freeport Phase II Order (Docket No. CP05-361-000), as applicable.

³⁶ 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).

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

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

APPENDIX A

1. Freeport LNG shall follow the construction procedures and mitigation measures described in their applications, supplemental filings (including responses to staff data requests), and as identified in the Environmental Impact Statement (EIS), unless modified by the Order. Freeport LNG must:
 - a. request any modification to these procedures, measures, or conditions in a filing;
 - 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. 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 Projects. 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**, Freeport LNG shall file an affirmative statement, certified by a senior company official, that all company personnel, environmental inspectors (EI), and contractor personnel will be informed of the EI'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 EIS, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Freeport LNG shall file any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for 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 alignment maps/sheets.

5. Freeport LNG shall file detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings. 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, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area.**

This requirement does not apply to extra workspace allowed by the Freeport LNG's Procedures and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
 - b. implementation of endangered, threatened, or special concern species mitigation measures;
 - c. recommendations by state regulatory authorities; and
 - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
6. **Within 60 days of the acceptance of the authorization and before construction begins**, Freeport LNG shall file a single Implementation Plan for the review and written approval by the Director of OEP for the Projects. Freeport LNG must file revisions to the plan as schedules change. The plan shall identify:
 - a. how Freeport LNG will implement the construction procedures and mitigation measures described in its respective application and supplements (including responses to staff data requests), identified in the EIS, and required by the Order;
 - b. how Freeport 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;
- c. the number of EIs assigned per spread and aboveground facility sites, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who will receive copies of the appropriate materials;
 - e. the location and dates of the environmental compliance training and instructions Freeport LNG will give to all personnel involved with construction and restoration (initial and refresher training as the Projects progress and personnel change), with the opportunity for OEP staff to participate in the training session(s);
 - f. the company personnel (if known) and specific portion of Freeport LNG's organization having responsibility for compliance;
 - g. the procedures (including use of contract penalties) Freeport LNG will follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar Project scheduling diagram), and dates for:
 - 1) the completion of all required surveys and reports;
 - 2) the environmental compliance training of onsite personnel;
 - 3) the start of construction; and
 - 4) the start and completion of restoration.
7. Freeport LNG shall employ at least one EI for the Liquefaction Plant and the Phase II Modification Project and at least one EI for the Pretreatment Plant and the Pipeline/Utility Line System. Each EI 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.
8. Beginning with the filing of its Implementation Plan, Freeport LNG shall file updated status reports on a **bi-weekly** basis for the Projects 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. an update on Freeport LNG's efforts to obtain the necessary federal authorizations;
 - b. the construction status at the Liquefaction and Phase II Modification Project sites, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by each EI 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);
 - d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
 - e. the effectiveness of all corrective actions implemented;
 - f. 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
 - g. copies of any correspondence received by Freeport LNG from other federal, state or local permitting agencies concerning instances of noncompliance, and Freeport LNG's response.
9. Freeport LNG shall develop and implement an environmental complaint resolution procedure. The procedure shall provide affected landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction and restoration of the Projects. **Prior to**

construction, Freeport LNG shall mail the complaint procedures to each landowner whose property would be crossed by the Projects.

- a. In its letter to affected landowners, Freeport LNG shall:
 - 1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
 - 2) instruct the landowners that if they are not satisfied with the response, they should call Freeport LNG's Hotline; the letter should indicate how soon to expect a response; and
 - 3) instruct the landowners that if they are still not satisfied with the response from Freeport LNG's Hotline, they should contact the Commission's Dispute Resolution Division Helpline at 877-337-2237 or at ferc.adr@ferc.gov.
 - b. In addition, Freeport LNG shall include in its biweekly status report a copy of a table that contains the following information for each problem/concern:
 - 1) the identity of the caller and date of the call;
 - 2) the location of the affected property;
 - 3) a description of the problem/concern; and
 - 4) an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.
10. **Prior to receiving written authorization from the Director of OEP to commence construction of the Projects**, Freeport LNG shall file documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
 11. Freeport LNG must receive written authorization from the Director of OEP **prior to introducing hazardous fluids into the Projects**. Instrumentation and controls, hazard detection, hazard control, and security components/systems necessary for the safe introduction of such fluids shall be installed and functional.
 12. Freeport LNG must receive written authorization from the Director of OEP **before placing the Projects into service**. Such authorization will only be granted following a determination that the facilities have been constructed in accordance with FERC approval and applicable standards, the facilities can be expected to operate safely as designed, and the rehabilitation and restoration of the areas affected by the Projects are proceeding satisfactorily.
 13. **Within 30 days of placing the authorized facilities in service**, Freeport LNG shall file an affirmative statement, certified by a senior company official:

- a. stating 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 Order conditions Freeport LNG has complied with or will comply with. This statement shall also identify any areas affected by the Projects where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
14. **Prior to construction**, Freeport LNG shall file with the Secretary the following information for the Pretreatment Plant site, stamped and sealed by the professional engineer-of-record:
- a. an analysis of the suitability and sensitivity of proposed structures within the fault hazard zone to potential offsets and either relocate those structures outside the fault hazard zone or provide structures that are designed to acceptably accommodate the potential fault offsets;
 - b. an analysis of the potential need to redesign or re-orient utilities or other structures that cross the fault, hazard zone and provide design details that demonstrate that the utilities and other structures acceptably accommodate potential fault offsets, including a plan to enable such structures to be periodically re-leveled;
 - c. a review of vertical support structures (if any) within the fault hazard zone;
 - d. threshold fault offset levels (total and differential) for movement-sensitive structures that cross the fault and action items for exceedance of those levels; and
 - e. a fault monitoring program in accordance with section 4.6 of the 2014 April 25, 2014 Detailed Fault Study Report No. 04.10130160 prepared by Fugro Consultants, Inc.
- In addition, Freeport LNG **shall file, in its Implementation Plan**, the schedule for producing this information. (EIS *section 4.1.1.3*)
15. Freeport LNG shall file with the Secretary the following information for the Liquefaction Plant, stamped and sealed by the professional engineer-of-record:

- a. an updated slope stability analysis of the north side of Liquefaction Plant area including the slope below the water level. This analysis shall include an updated bathymetry along the waterway channel that defines the underwater continuation of the slope included in the stability analysis;
- b. site preparation drawings and specifications;
- c. design drawings and calculations of structures and foundations of the Liquefaction Plant; and
- d. seismic specifications used in conjunction with procuring Liquefaction Plant equipment prior to the issuing of requests for quotations.

In addition, Freeport LNG **shall file, in its Implementation Plan**, the schedule for producing this information. (EIS *section 4.1.1.3*)

16. **Prior to the start of horizontal directional drill (HDD) operations**, Freeport LNG shall file a final site-specific HDD Monitoring and Contingency Plan for review and written approval by the Director of the OEP. (EIS *section 4.3.2.1*)
17. **Prior to construction of the Projects**, Freeport LNG shall file an updated Erosion and Sediment Control Plan to incorporate drainage modifications that meet the requirements of the Velasco Drainage District. (EIS *section 4.3.2.2*)
18. Freeport LNG shall avoid vegetation clearing during the primary nesting season for migratory birds, **April 1 through July 15**. If Freeport LNG is unable to avoid this vegetation clearing restriction time-frame, it shall consult with the U.S. Fish and Wildlife Service (FWS) regarding Freeport LNG's vegetation clearing time-frame and file with the Secretary the results of the consultation **prior to construction**.
19. **Prior to construction**, Freeport LNG shall incorporate the FWS Avian Protection Plan Guidelines into the design for the proposed 2.93-mile-long 138 kilovolt electric transmission line to the Liquefaction Plant, and the 1.98-mile-long 138 kilovolt electric transmission line to the Pretreatment Plant. (EIS *section 4.5.3.1*)
20. Freeport LNG **shall not begin construction activities** until:
 - a. the staff completes formal consultation with the FWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service; and

- b. Freeport LNG **has received written** notification from the Director of OEP that construction or use of mitigation may begin. (EIS *section 4.6.1.4*)
21. Freeport LNG **shall not begin construction** of the Projects until it files a copy of the determination of consistency with the Texas Coastal Management Program issued by the Coastal Coordination Council. (EIS *section 4.7.4*)
22. Freeport LNG **shall not begin construction** of its Pretreatment Plant electric line, and the Pipeline/Utility Lines System, and/or use of related ancillary areas for staging, storage, and temporary work areas (including the Seaway Dredged Material Placement Area and new or to-be-improved access roads, **until**:
- a. Freeport LNG files:
- 1) remaining cultural resources survey reports;
 - 2) site evaluation report and avoidance/treatment plan, as required; and
 - 3) comments on the cultural resources reports and plans from the State Historic Preservation Office;
- b. the Advisory Council on Historic Preservation is afforded an opportunity to comment if historic properties would be adversely affected; and
- c. the FERC staff reviews and the Director of OEP approves the cultural resources reports and plans, and notifies Freeport LNG in writing that treatment plans/mitigation measures (including archaeological data recovery) may be implemented and/or construction may proceed.

All materials filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: **“CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE.”** (EIS *section 4.9.4*)

Recommendations 23 through 75 shall apply to the Projects. Information pertaining to these specific recommendations shall be filed for review and written approval by the Director of OEP either: **prior to initial site preparation; prior to construction of final design; prior to commissioning; prior to introduction of hazardous fluids; or prior to commencement of service**, as indicated by each specific condition. Specific engineering, vulnerability, or detailed design information meeting the criteria specified in Order No. 683 (Docket No. RM06-24-000), including security information, shall be filed as critical energy infrastructure information pursuant to 18 CFR 388.112. See Critical Energy Infrastructure Information, Order No. 683, 71 Fed. Reg. 58,273

(October 3, 2006), FERC Stats. & Regs. 31,228 (2006). Information pertaining to items such as: offsite emergency response; procedures for public notification and evacuation; and construction and operating reporting requirements, will be subject to public disclosure. All information shall be filed **a minimum of 30 days** before approval to proceed is requested.

23. **Prior to initial site preparation**, Freeport LNG shall provide procedures for controlling access during construction.
24. **Prior to initial site preparation**, Freeport LNG shall file an updated Emergency Response Plan (ERP) which addresses on-site and off-site emergency response for both the LNG terminal site and the Pretreatment Plant. The ERP shall include evidence of consultation and coordination with all incident response organizations or personnel responsible for emergency response, public notification, and shelter-in-place/evacuation actions. Information pertaining to items such as off-site emergency response and procedures for public notification and evacuation would be subject to public disclosure.
25. **Prior to initial site preparation**, the updated ERP 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 should include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base.
26. **Prior to initial site preparation**, Freeport LNG shall file the quality assurance and quality control procedures for construction activities.
27. **Prior to initial site preparation**, Freeport LNG shall file a plot plan of the final design showing all major equipment, structures, buildings, and impoundment systems.
28. **Prior to initial site preparation**, Freeport LNG shall file an overall project schedule, which includes the proposed stages of the commissioning plan.
29. **Prior to initial site preparation**, Freeport LNG shall file a comparative analysis to support the FLACS results using a computational fluid dynamics (CFD) model that is able to account for the presence of the piperack vapor barriers.
30. **Prior to construction of the final design**, Freeport LNG shall file the results of consultation with U.S. Department of Transportation (DOT) indicating that the length of the vapor barriers applied above and along the unloading/loading line in

the area of the ExxonMobil facility would be sufficient to provide compliance with 49 C.F.R. 193.2059.

31. **Prior to construction of the final design**, Freeport LNG shall file the plant geometry models or drawings that verify the confinement and congestion represented in the Front-End Engineering Design (FEED) of the Liquefaction Project or provide revised overpressure calculations indicating that a 1 psi overpressure would not impact the public.
32. **Prior to the construction of the final design**, Freeport LNG shall file certification that the final design of the facilities at the terminal is consistent with the information provided to USDOT as described in the design spill determination letter dated December 31, 2013 (Accession Number 20140106-4003) as well as in Freeport LNG's filings on December 31, 2013 (Accession Numbers 20131231-5265 and 20131231-5266). In the event that any modifications to the design alters the single accidental leakage sources on which the Title 49 CFR Part 193 siting analysis was based, Freeport LNG should consult with USDOT on any actions necessary to comply with Part 193.
33. **Prior to the construction of the final design**, Freeport LNG shall file certification that the final design of the Pretreatment Plant facilities is consistent with the information provided to FERC in the project docket. In the event that any modification to the design alters the single accidental leakage sources on which the siting analysis was based, Freeport LNG should consult with FERC staff on any actions necessary to re-evaluate the siting of the Pretreatment Plant facilities.
34. **The final design** shall address the information/revisions to Freeport LNG's responses to the Engineering Information Requests identified in table 4.10.3-1 of the EIS, which indicated features to be included in the final design and documentation.
35. **The final design** shall include change logs that list and explain any changes made from the FEED provided in Freeport LNG's applications and filings. A list of all changes with an explanation for the design alteration shall be provided and all changes shall be clearly indicated on all diagrams and drawings.
36. **The final design** shall provide up-to-date Process Flow Diagrams with heat and material balances and Piping and Instrument Diagrams (P&ID), which include the following information:
 - a. equipment tag number, name, size, duty, capacity, and design conditions;
 - b. equipment insulation type and thickness;

- c. storage tank pipe penetration size and nozzle schedule;
 - d. valve high pressure side and internal and external vent locations;
 - e. piping with line number, piping class specification, size, and insulation type and thickness;
 - f. piping specification breaks and insulation limits;
 - g. all control and manual valves numbered;
 - h. relief valves with set points; and
 - i. drawing revision number and date.
37. **The final design** shall provide P&IDs, specifications, and procedures that clearly show and specify the tie-in details required to safely connect to the existing facilities.
38. **The final design** shall provide an up-to-date complete equipment list, process and mechanical data sheets, and specifications.
39. **The final design** shall provide complete drawings and a list of the hazard detection equipment. The drawings shall clearly show the location and elevation of all detection equipment. The list shall include the instrument tag number, type and location, alarm indication locations, and shutdown functions of the hazard detection equipment.
40. **The final design** shall provide complete plan drawings and a list of the fixed and wheeled dry-chemical, hand-held fire extinguishers, and other hazard control equipment. Drawings shall clearly show the location by tag number of all fixed, wheeled, and hand-held extinguishers. The list shall include the equipment tag number, type, capacity, equipment covered, discharge rate, and automatic and manual remote signals initiating discharge of the units.
41. **The final design** shall provide facility plans and drawings that show the location of the firewater and foam systems. Drawings shall clearly show: firewater and foam piping; post indicator valves; and the location, and area covered by, each monitor, hydrant, deluge system, foam system, water-mist system, and sprinkler. The drawings shall also include P&IDs of the firewater and foam system.
42. **The final design** shall provide an updated fire protection evaluation of the proposed facilities carried out in accordance with the requirements of National Fire Protection Association (NFPA) 59A 2001, chapter 9.1.2 as required by 49 Code of Federal Regulations (CFR) Part 193. A copy of the evaluation, a list

of recommendations and supporting justifications, and actions taken on the recommendations shall be filed.

43. **The final design** shall specify that for hazardous fluids, the piping and piping nipples 2 inches or less are to be no less than Schedule 160.
44. **The final design** shall provide an air gap or vent installed downstream of process 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.
45. **The final design** shall provide electrical area classification drawings.
46. **The final design** shall provide spill containment system drawings with dimensions and slopes of curbing, trenches, and impoundments.
47. **The final design** of the hazard detectors shall account for the calibration gas when determining the lower flammability limit set points for methane, propane, ethylene, and natural gas liquids.
48. **The final design** shall include a hazard and operability review of the completed design prior to issuing the P&IDs for construction. A copy of the review, a list of recommendations, and actions taken on the recommendations shall be filed.
49. **The final design** shall include the cause-and-effect matrices for the process instrumentation, fire and gas detection system, and emergency shut-down (ESD) system. The cause-and-effect matrices shall include alarms and shutdown functions, details of the voting and shutdown logic, and setpoints.
50. **The final design** shall include a plan for clean-out, dry-out, purging, and tightness testing. This plan shall address the requirements of the American Gas Association's Purging Principles and Practice required by 49 C.F.R. § 193, and shall provide justification if not using an inert or non-flammable gas for cleanout, dry-out, purging, and tightness testing.
51. **The final design** shall include the sizing basis and capacity for the final design of pressure and vacuum relief valves for major process equipment, vessels, storage tanks, and vent stacks.
52. **The final design** shall provide the procedures for pressure/leak tests which address the requirements of the American Society of Mechanical Engineers (ASME) VIII and ASME B31.3, as required by 49 C.F.R. § 193.

53. **The final design** shall include a drawing showing the location of the ESD buttons. ESD buttons shall be easily accessible, conspicuously labeled and located in an area which would be accessible during an emergency.
54. **The final design** shall include a delayed automatic start for the intracoastal waterway firewater pumps.
55. **The final design** shall provide a hydraulic study for the liquefied natural gas (LNG) storage tank piping with the larger in-tank pumps, and confirm the final size of the discharge nozzle and header pipe.
56. **The final design** shall ensure that the LNG storage tank piping supports are adequately designed for the higher rated in-tank pump flow rates.
57. **The final design** shall provide a list of the uninterruptible power supply locations, sizes with load capacities, and services.
58. **The final design** shall include detection of a leak through the pump primary electrical seals, in addition to monitoring and alarming the nitrogen gas pressure to the seal purge, in order to account for small leaks that pressure indicators may not be able to detect. Low temperature or flammable gas detection shall be provided downstream of primary seal. The junction box shall be equipped with flammable gas detection.
59. **The final design** shall include the addition of high pressure alarm and shutdown on the LNG Transfer Drums.
60. **The final design** shall include double isolation valves on the propane vaporizer drains.
61. **The final design** shall specify that the refrigeration system vent lines be equipped with double isolation valves.
62. **The final design** shall specify a pipe class of T39 for the LNG cooldown lines (4"-LNG-111032, 4"-LNG-121032, and 4"-LNG-131032) to downstream of isolation valves (V10448, V20448, and V30448), respectively.
63. **The final design** shall specify that relief valves shall not vent back into a system that has a design pressure equal to or above the relief valve set pressure. The calculated operating pressure of all relief valves shall not exceed the allowable operating pressure of that particular relief valve under any condition.
64. **The final design** shall include a list of the recommendations not considered or included in the final design that are listed in the hazard identification review of December 8, 2011 and the justification for the omission.

65. **The final design** shall include the details of the vapor barriers as well as procedures to maintain and inspect the vapor barriers provided to meet the siting provisions of 49 C.F.R. § Part 193.2059.
66. **The final design** shall include details of the mechanical measures that would prevent the ship transfer rate from exceeding 10,000 cubic meters per hour in any pipe segment.
67. **Prior to commissioning**, Freeport LNG shall file plans and detailed procedures for: testing the integrity of onsite mechanical installation; functional tests; introduction of hazardous fluids; operational tests; and placing the equipment into service.
68. **Prior to commissioning**, Freeport LNG shall provide a detailed schedule for commissioning through equipment startup. The schedule shall include milestones for all procedures and tests to be completed: prior to introduction of hazardous fluids and during commissioning and startup. Freeport LNG shall file documentation certifying that each of these milestones has been completed before authorization to commence the next phase of commissioning and startup will be issued.
69. **Prior to commissioning**, Freeport LNG shall provide tag numbers on equipment and flow direction on piping.
70. **Prior to commissioning**, Freeport LNG shall tag all instrumentation and valves in the field, including drain valves, vent valves, main valves, and car-sealed or locked valves.
71. **Prior to commissioning**, Freeport LNG shall file updates addressing the Projects in the operation and maintenance procedures and manuals, as well as safety procedures.
72. **Prior to commissioning**, Freeport LNG shall maintain a detailed training log to demonstrate that operating staff has completed the required training.
73. **Prior to introduction of hazardous fluids**, Freeport LNG shall complete a firewater pump acceptance test and firewater monitor and hydrant coverage test. The actual coverage area from each monitor and hydrant shall be shown on facility plot plan(s).
74. **Prior to introduction of hazardous fluids**, Freeport LNG shall complete all pertinent tests (Factory Acceptance Tests, Site Acceptance Tests, Site Integration Tests) associated with the Distributed Control System and Safety Instrumented System that demonstrates full functionality and operability of the system.

75. **Prior to commencement of service**, progress on the construction of the proposed systems shall be reported in **monthly** reports filed with the Secretary. Details shall include a summary of activities, problems encountered, contractor non-conformance/deficiency logs, remedial actions taken, and current project schedule. Problems of significant magnitude shall be reported to the FERC **within 24 hours**.

In addition, recommendations 76 through 79 shall apply throughout the life of the Freeport LNG facilities.

76. 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, Freeport LNG 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 P&IDs 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 filed.
77. Semi-annual operational reports shall be filed to identify changes in facility design and operating conditions, abnormal operating experiences, activities (including ship arrivals, quantity and composition of imported and exported LNG, liquefied and vaporized quantities, boil-off/flash gas, etc.), plant modifications, including future plans and progress thereof. Abnormalities shall include, but not be limited to: unloading/loading/shipping problems, potential hazardous conditions from off-site 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, hazardous fluids releases, fires involving hazardous fluids and/or from other sources, negative pressure (vacuum) within a storage tank and higher than predicted boil-off rates. Adverse weather conditions and the effect on the facility also shall be reported. Reports shall be submitted **within 45 days after each period ending June 30 and December 31**. In addition to the above items, a section entitled "Significant Plant Modifications Proposed for the Next 12 Months (dates)" also shall be included in the semi-annual operational reports. Such information would provide FERC staff with early notice of anticipated future construction/maintenance projects at the LNG facility.
78. Significant non-scheduled events, including safety-related incidents (e.g., LNG, refrigerant, or natural gas releases, fires, explosions, mechanical failures, unusual over pressurization, and major injuries) and security-related incidents (e.g., 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 shall be made to FERC staff **within 24 hours**. This notification practice shall be incorporated into the LNG facility's emergency plan. Examples of reportable hazardous fluids 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. release of hazardous fluids for five minutes or more;
- 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 hazardous fluids;
- g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes hazardous fluids;
- h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes hazardous fluids 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 hazardous fluids 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 hazardous fluids;

- l. safety-related incidents to hazardous fluids 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.

79. Freeport LNG shall notify the Commission **within 30 days prior** to exceeding 250 LNG ship-calls in a calendar year. This will allow Commission staff to ensure that the General Conformity analysis is revised in accordance with 40 C.F.R. § 93.157(c).
80. **Prior to construction**, Freeport LNG shall file a Construction Noise Mitigation Plan, for review and approval by the Director of OEP that outlines measures to reduce dredging noise to no greater than 55 A-weighted day-night averaged decibels (dBA L_{dn}) at noise sensitive areas (NSA), and to reduce peak pile driving noise (L_{peak}) to no greater than 10 A-weighted decibels (measured as peak pile driving impulse noise) over ambient levels. (EIS *section 4.11.2.2*)
81. Freeport LNG shall file a full load noise survey **no later than 60 days** after placing the Pretreatment Plant into service. If a full load condition noise survey is not possible, Freeport LNG shall file an interim survey at the maximum possible load **within 60 days** of placing the Pretreatment Plant into service and file the full load survey **within 6 months**. If the noise attributable to the operation of the equipment at the Pretreatment Plant at full load exceeds 55 dBA L_{dn} at any nearby NSAs, Freeport LNG shall install additional noise controls to meet the level **within 1 year** of the in-service date. Freeport LNG shall confirm compliance with this requirement by filing a second full load noise survey **no later than 60 days** after it installs the additional noise controls. (EIS *section 4.11.2.2*)
82. Freeport LNG shall file a full load noise survey **no later than 60 days** after each of the first two liquefaction trains are placed into service at the Liquefaction Plant. If the noise attributable to the operation of the equipment at the Liquefaction Plant exceeds 55 dBA L_{dn} at any nearby NSA, Freeport LNG shall reduce operation of the Liquefaction Plant or install noise mitigation to meet that level at the nearest

NSAs. Freeport LNG shall confirm compliance with this requirement by filing a second full power noise survey **no later than 60 days** after it installs the additional noise controls. (EIS *section 4.11.2.2*)

83. Freeport LNG shall file a full load noise survey **no later than 60 days** after placing the entire Liquefaction Plant into service. If a full load noise survey is not possible, Freeport LNG shall file an interim survey at the maximum possible load within 60 days of placing the Liquefaction Plant into service and file the full operational surveys **within 6 months**. If the noise attributable to the operation of all the equipment of the Liquefaction Plant at full load exceeds 55 dBA L_{dn} at any nearby NSAs, Freeport LNG shall install additional noise controls to meet the level **within 6 months** of the in-service date. Freeport LNG shall confirm compliance with this requirement by filing a second full load noise survey **no later than 60 days** after it installs the additional noise controls. (EIS *section 4.11.2.2*)