UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

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

Freeport LNG Development, L.P. Docket No. CP05-361-000

ORDER ISSUING AUTHORIZATION UNDER SECTION 3
OF THE NATURAL GAS ACT

(Issued September 26, 2006)

1. On May 26, 2005, Freeport LNG Development, L.P. (Freeport) filed an application under section 3 of the Natural Gas Act (NGA) in Docket No. CP05-361-000 requesting authority to site, construct, and operate additional facilities at its existing liquefied natural gas (LNG) import terminal on Quintana Island, Brazoria County, Texas. The facilities proposed here would constitute Phase II of the original Freeport LNG Project which was authorized on June 18, 2004, in Docket No. CP03-75-000, as amended on August 17, 2005 in Docket No. CP03-75-002.[1] The proposed expansion would increase the terminal's send-out capacity from 1.5 billion cubic feet per day (Bcfd) to 4.0 Bcfd enabling Freeport to meet additional demand in the Texas intrastate market. For the reasons discussed below, the Commission is granting the requested authorization.

Background and Proposal

2. On June 18, 2004, in Docket No. CP03-75-000, the Commission, pursuant to section 3 of the NGA, authorized Freeport to site, construct and operate a new LNG import, storage, and vaporization terminal consisting of a single-berth unloading dock, two LNG storage tanks, vaporization facilities, and an associated 9.6-mile, 36-inch diameter, send-out pipeline extending from the LNG terminal to the Stratton Ridge meter

[1] *Freeport LNG Development, L.P.*, 107 FERC ¶ 61,278 (2004), *order granting rehearing and clarification*, 108 FERC ¶ 61,253 (2004), *order amending section 3 authorization*, 112 FERC ¶ 61,194 (2005).

station in Brazoria County, Texas. Freeport's proposed Phase I facilities would transport up to 1.5 Bcfd of regasified LNG to the Texas intrastate market.[2]

3. On August 17, 2005, in Docket No. CP03-75-002, the Commission, pursuant to NGA section 3, authorized Freeport to modify the project's send-out pipeline by increasing its diameter from 36- to 42-inches.[3] The Commission found that this increase in diameter would provide Freeport with more operational flexibility by maintaining a higher delivery pressure at the Stratton Ridge delivery point at the terminus of the line which, in turn, would enable Freeport to respond to larger hourly swings in demand on its system. The Commission also found that in addition to the existing subscriptions for service, Freeport had received additional requests for service to begin when the Phase I project goes into service. The larger diameter send-out pipeline would provide capacity for these additional customers. Further, the additional send-out capacity of the pipeline would be required to deliver anticipated Phase II volumes for which new facilities would have to be constructed. The Commission found that by sizing the send-out pipeline to meet the subscriptions and additional requests for Phase I service, as well as the requests for Phase II service, Freeport would be able to avoid construction of an additional pipeline or compression and any resultant environmental impact.[4]

4. Since the capacity of the Phase I Freeport LNG Project is fully subscribed and since sufficient interest in additional capacity had emerged, on May 26, 2005, Freeport filed the instant request for authorization under section 3 of the NGA to site, construct, and operate additional LNG facilities to expand capacity to meet these additional requests. In a supplement dated November 2, 2005, Freeport notified the Commission that potential Phase II customers have indicated an interest in accessing the interstate market. Freeport states that such access would occur at a point downstream of the terminus of the Freeport facilities. Freeport would deliver the regasified LNG to an intrastate pipeline that would then transport the gas in interstate commerce pursuant to Part 284, Subpart C, of the Commission's regulations.[5] This section authorizes intrastate pipelines to transport natural gas on behalf of any interstate pipeline or any local

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[2] Freeport began construction of the Phase I LNG terminal facilities on January 17, 2005.

[3] *Freeport*, 112 FERC ¶ 61,194 (2005).

[4] On February 21, 2006, Freeport was authorized to commence construction on the send-out pipeline.

[5] 18 C.F.R. Part 284, subpart C (2006).

distribution company served by an interstate pipeline as provided by section 311(a) of the Natural Gas Policy Act of 1978 (NGPA).[6]

5. Phase II of the project would consist of the construction and operation of an additional marine berthing dock, a new vaporization facility and an expansion of the one authorized for the Phase I project, and an additional LNG storage tank. The berthing dock and unloading facilities would include a marine LNG unloading dock to accommodate between 88,000 and 250,000 m^3 of ship capacity, four LNG unloading arms and one vapor return arm, two 32-inch diameter cryogenic insulated transfer pipelines, a ship vapor return blower with a 41.3 MMcf/day capacity, an unloading compressor with 29.2 MMcf/day capacity, and possibly a storm water pump. Further, Freeport would add facilities to the Phase I northwest vaporization facility, which in cold weather uses a primary closed circuit water/glycol solution heated system, by adding three water/glycol heaters and blowers operating at 130.7 MMBtu/hour, and two high pressure LNG vaporizers operating at 144.2 MMBtu/hour. For warm weather operation, Freeport proposes to add to the vaporization facilities utilize three intermediate heat exchangers operating at 103.3 MMBtu/hour to provide a secondary circulating water system heated by an air tower. Four cells would be added to the Phase I air tower to increase the air tower's capacity by 70.4 MMBtu/hour. The vaporization facilities would also include two high pressure LNG booster pumps, a water/glycol pump, a circulating water pump, and a compressor suction drum.

6. The new Northeast vaporization facility would include eleven water/glycol heaters and blowers operating at 130.7 MMBtu/hour, along with eight high pressure LNG vaporizers operating at 144.2 MMBtu/hour and three natural gas superheaters for cold weather and thirteen intermediate heat exchangers operating at 93.0 MMBtu/hour for warm weather. The northeast vaporization facility would also include two fuel gas heaters, an air tower with 16 cells which would operate at 1126.5 MMBtu/hour, eight high pressure LNG booster pumps with individual capacities of 2,450 gpm, five water/glycol pumps with individual capacities of 36,500 gpm, three natural gas/fuel superheater pumps with individual capacities of 2,130 gpm, and five circulating water pumps with individual capacities of 30,950 gpm that can be used in both the cold and warm weather heating systems, four water/glycol heater pumps with individual capacities of 7,750 gpm, and a water/glycol drain pump with a capacity of 100 gpm. In addition to associated safety and backup equipment, the northeast vaporization facility will include: a BOG condenser; a nitrogen receiver; a water/glycol surge drum; a water/glycol drain drum; and a vaporizer vent stack.

7. The additional LNG storage tank will have a capacity of 160,000 m^3 and will also include three send-out pumps with individual capacities of 5,065 gpm and a tank area storm surge pump. According to Freeport, the addition of a second dock would enable

[6] 15 U.S.C. §3371(a)(2) (2006).

two LNG carriers to be offloaded simultaneously. Freeport anticipates that the number of LNG carriers expected to call at the terminal will increase from 200 to 400 vessels per year.[7]

8. The Phase II Project would increase the import terminal's planned send-out capacity from 1.5 Bcf per day to 4.0 Bcf per day. Freeport states that once the Phase II Project is fully constructed, natural gas will be sent out of the import terminal via the Phase I send-out pipeline, which, when constructed, will connect to the intrastate pipeline systems of Dow Pipeline Company; Kinder Morgan Texas Pipeline, L.P.; Houston Pipeline Company and Texas Utilities Pipeline Company at the Stratton Ridge terminus. Further, Freeport states that several other companies are considering plans to develop intrastate pipelines in the Stratton Ridge area, with the potential for additional connections to Freeport system. Freeport estimates that the construction of the Phase II facilities will begin in late 2006 or early 2007 and end in mid to late 2009.

Interventions

9. Notice of Freeport's application was published in the *Federal Register* on June 22, 2005, 70 Fed. Reg. 36,133 (2005). Dow Chemical Company and MC Global Gas Corporation filed timely, unopposed motions to intervene.[8] Timely, unopposed motions to intervene are granted by operation of Rule 214. The City of Freeport, Texas, filed an untimely motion to intervene and comments. The City of Freeport states that it is concerned that the additional LNG vessel traffic may have a negative impact on commercial and recreational boat traffic to and from the Gulf of Mexico and the City of Freeport. Since the City of Freeport has demonstrated an interest in this proceeding and its intervention will not delay, disrupt, or otherwise prejudice this proceeding, we will grant City of Freeport's motion for good cause.

Discussion

10. Since the proposed LNG terminal would be used to import natural gas from a foreign country, the construction and operation of the expansion facilities and the location of the facilities are subject to section 3 of the NGA and to the Commission's jurisdiction.

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[7] Freeport notes that it is planning the development of a non-jurisdictional underground natural gas storage facility near the Stratton Ridge terminus of the import terminal's natural gas send-out pipeline to increase the capabilities of the LNG import terminal. The facility, consisting of two new salt-dome storage caverns, and its operation would be regulated by the Texas Railroad Commission.

[8] Timely, unopposed motions to intervene are granted by operation of Rule 214 of the Commission's Rules of Practice and Procedure. 18 C.F.R. §385.214 (2006).

11. The Commission shall issue authorization under NGA section 3 unless it finds that granting the requested authorization "will not be consistent with the public interest." Here, the record shows that the capacity of the Phase I project is fully subscribed and requests for future deliveries for Phase II have been received. Thus, expansion of the import terminal, which is already under construction, will enhance Freeport's ability to provide needed natural gas supplies to the Texas market and the interstate market, the latter through deliveries to another intrastate pipeline. For these reasons and subject to the environment discussion below, the Commission finds that Freeport's instant proposal is not inconsistent with the public interest.

Environmental Review

12. On July 19, 2005, the Commission's environmental staff issued a Notice of Intent (NOI) to Prepare an Environmental Assessment (EA) for the Proposed Freeport LNG Phase II project and a request for comments on environmental issues. Responses to the NOI were received from the U. S. Environmental Protection Agency (EPA), Region 6; the Texas Commission on Environmental Quality (TCEQ), Houston Audubon Society (Audubon Society), and two landowners. The EA addresses all substantive comments received. EPA and TCEQ commented on air quality issues. The EA contains the staff's final general conformity determination which responds to these concerns. The Audubon Society expressed concerned about noise impacts on birds. The EA includes a mitigation measure, which sets limits for the overall noise from the LNG terminal. The two landowners expressed general safety concerns which also were addressed in the EA. The EA also addressed the potential impact of additional LNG vessel traffic on commercial and recreational boat traffic to the City of Freeport. The EA was issued for public comment on June 19, 2006. One comment letter, from the National Marine Fisheries Service (NMFS), was received on the EA. NMFS indicated that the EA adequately addressed the essential fish habitat in the project area and the project impacts on that habitat.

13. The EA addresses geology and soils, land use, water resources, fisheries, and wetlands, cultural resources, vegetation and wildlife, air quality and noise, endangered and threatened species, hazardous waste, cumulative impacts, and reliability and public safety and recommends appropriate mitigation measures to either avoid or minimize any impacts on the environment. The primary purpose in preparing this EA was to evaluate the incremental changes to Freeport's Phase I project and to update the analyses in the Final Environmental Impact Statement (FEIS) prepared for the Freeport Phase I project, where necessary, to reflect the environmental impact that the additional Phase II facilities will have. Therefore, this EA does not re-evaluate environment issues that were addressed in the FEIS where the conclusions regarding them will not change as a result of the Phase II project.

14. The Commission was the lead agency for the preparation of the EA and is the federal agency responsible for authorizing the site for onshore LNG import facilities. The U.S. Coast Guard (Coast Guard) is the federal agency responsible for determining the suitability of the waterway for LNG marine traffic and, as such, was a cooperating agency on the EA. The Coast Guard plays an important role with regard to maritime issues. Other cooperating federal agencies with respect to preparation of the EA include the U.S. Fish and Wildlife Service (FWS), the U.S. Army Corps. of Engineers (Corps.), and the National Marine Fisheries Service (NOAA Fisheries). However, as the lead agency, the Commission is responsible for compliance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA, and various other federal laws and regulations.

15. On June 14, 2005, the Coast Guard issued a Navigation and Vessel Inspection Circular – Guidance on Assessing the Suitability of a Waterway for Liquefied Natural Gas (LNG) Marine Traffic (NVIC 05-05) to provide Coast Guard Captains of the Port (Captains of the Port)/Federal Maritime Security Coordinators (FMSC), members of the LNG industry, and port stakeholders with guidance on assessing the suitability and security of a waterway for LNG marine traffic. It provides specific guidance on the timing and scope of the waterway suitability assessment (WSA). The WSA process addresses the transportation of LNG from an LNG tanker's entrance into U.S. territorial waters, through its transit to and from the LNG receiving facility, and includes operations at the vessel/facility interface. In addition, the WSA addresses the navigational safety issues and port security issues introduced by the proposed LNG operations.

16. In December 2005, Freeport submitted a WSA for the proposed project to the Captain of the Port for Coast Guard Marine Safety Unit Galveston. The Coast Guard, with input from various stakeholders, including the Port of Freeport Harbor and Terminal District, Brazoria County pilots, Brazoria County Emergency Manager, members of the Brazosport Marine Action Team, and Freeport Fire and EMS Department, has completed a review of Freeport's WSA in accordance with the guidance in NVIC 05-05. The Coast Guard's review of Freeport's WSA focused on the navigation safety and maritime security risks posed by LNG marine traffic from the broad viewpoint of impact on the entire port, including the size and frequency of tankers proposed as part of the entire project, as well as on specific points of concern along the LNG tanker's proposed transit route. The Coast Guard's review of the WSA also included looking at the measures needed to responsibly manage the identified safety and security risks.

17. By letter of June 2, 2006, the Coast Guard provided the Commission with the results of its review of the WSA. It also provided input on the capability of the port community to implement the necessary risk management measures to address the risks of LNG marine traffic in the port. Specifically, the Coast Guard preliminarily determined that the Freeport Harbor Channel that leads to the proposed LNG terminal in Freeport, Texas, may be suitable for accommodating the type and frequency of LNG vessels being

proposed by the applicant. This determination, however, is preliminary, pending completion of the Coast Guard's review.

18. The Coast Guard's determination is also contingent upon the Coast Guard and other participating agencies having the appropriate resources to implement all of the measures necessary to responsibly manage the safety and security risks of LNG marine traffic in this area. Once the plans for implementing the risk management and safety measures plans are finalized and the resources required to implement them have been identified, Freeport will be able to more specifically discuss the funding of such resources. In order to better define how the potential burden on local communities would be addressed, the EA recommended that Freeport provide a plan that identifies the mechanisms for funding project-specific security/emergency management costs that would be imposed on state agencies and local communities. The Commission agrees with that recommendation.

19. In a supplemental letter, also dated June 2, 2006, the Coast Guard described in detail the conceptual prevention/mitigation strategies, along with resource needs. If the Coast Guard ultimately issues a Letter of Recommendation finding the waterway suitable for LNG marine traffic, the security measures outlined in the letters to the Commission will be further developed into a detailed *Liquefied Natural Gas Vessel Management and Emergency Plan* (*LNG Management and Emergency Plan*), which would become the basis for appropriate security measures for each Maritime Security threat level. This plan would clearly spell out roles, responsibilities, and specific procedures for an LNG vessel transiting the Freeport Harbor Channel up to the Freeport terminal, as well as the roles for all agencies involved in implementing security and safety during the operation. This plan would require that prior to an LNG vessel being granted permission to enter the Freeport Harbor Pass Channel, both the vessel and facility must be in full compliance with the appropriate requirements of the Maritime Transportation Security Act and International Ship and Port Facility Security Code, and the security protocols to be established by the Captains of the Port in the *LNG Management and Emergency Plan*. The plan may include security measures such as: (1) the Coast Guard and other law enforcement agency vessels enforcing safety and security zones around the LNG vessels while in transit and moored at the terminal; (2) shoreside surveillance and monitoring along designated sections of the transit route; and (3) other prevention/mitigation strategies.

20. We note that the *LNG Management and Emergency Plan* would be prepared well before import operations commence, and, therefore, the port's overall security picture may change prior to that time period. New port activities may commence, infrastructure may be added, or population density may change. Improvements in technology to detect, deter, and defend against intentional harmful acts may also develop. Therefore, the final EA recommended that Freeport: (1) annually review its WSA relating to LNG vessel traffic for the project; (2) update the assessment to reflect changing conditions which may impact the suitability of the waterway for LNG marine traffic; (3) provide the updated

assessment relating to LNG vessel traffic to the cognizant Captains of the Port/Federal Maritime Security Coordinator (Federal Coordinator) for their review, validation, and further action, if appropriate, by the Captains of the Port/Federal Coordinator; and (4) provide a copy to the Commission staff. The Commission concurs with this recommendation.

21. The EA evaluated the safety of both the proposed Phase II Project facilities and the related LNG vessel transit through the Freeport Harbor Channel. That analysis identified the principal properties and hazards associated with LNG, presented a summary of the design and technical review of the cryogenic aspects of the LNG terminal, discussed the types of storage and retention systems, analyzed the thermal radiation and flammable vapor cloud hazards resulting from credible LNG spills, analyzed the safety aspects of LNG transportation by ship, and reviewed issues related to security and terrorism. Requirements for safety of the terminal are codified in the Coast Guard's regulations in 33 CFR Part 127, while the requirements for maintaining security are set forth in 33 CFR Part 105. Implementation of these requirements will be approved by the Captain of the Port.

22. With respect to the onshore LNG facility, a cryogenic design and technical review of the proposed terminal design and safety systems was completed and is reported in the EA. That review noted several areas of concern, and as a result, the EA recommends 52 Environmental Conditions for modifications to the terminal design. Information pertaining to these modifications is to be filed for review and approval by the Director of the Commission's Office of Energy Projects prior to initial site preparation, construction of final design, commissioning or commencement of service as indicated by each specific recommendation. The EA also evaluated the thermal radiation and flammable vapor dispersion exclusion zones of the proposed LNG terminal. The analysis found that no excluded uses are within these areas.

23. In addition, the EA discussed the Department of Energy's (DOE) study by Sandia National Laboratories entitled, *Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water* (*Sandia Report*) dated December 2004. The study evaluated an LNG cargo tank breach using modern finite element modeling and explosive shock physics modeling to estimate a range of breach sizes for credible accidental and intentional LNG spill events. Based on the *Sandia Report*, breach sizes, thermal radiation, and flammable vapor hazard distances were calculated in the EA for an accident or an attack on an LNG vessel. Using the methodology in this report, the EA estimated distances for a nominal 2.5-meter and 3-meter diameter hole to range from 4,360 to 4,830 feet for a thermal radiation of 1,600 Btu/ft^2-hr, the level which is hazardous for persons located outdoors and unprotected; from 3,360 to 3,710 feet for 3,000 Btu/ft^2-hr, an acceptable level for wooden structures; and from 1,990 to 2,190 feet for 10,000 Btu/ft^2-hr, a level sufficient to damage process equipment for these size holes respectively.

24. Based on the extensive operational experience of LNG shipping, the structural design of an LNG vessel, and the operational controls imposed by the Coast Guard and the local pilots, a cargo containment failure and subsequent LNG spill from a vessel casualty – collision, grounding, or allision – is highly unlikely. For similar reasons, an accident involving the onshore LNG import terminal is unlikely to affect the public. As a result, the EA determined that the risk to the public from accidental causes is negligible.

25. While experience provides guidance with respect to accidental effects on LNG operations, it provides little guidance in estimating the probability of a terrorist attack on an LNG vessel or onshore storage facility. Since a new LNG import terminal proposal involves a large volume of energy transported and stored near populated areas, the perceived threat of a terrorist attack is a serious concern of the local population and requires that resources be directed to mitigate possible attack paths. If the Coast Guard issues a Letter of Recommendation finding the waterway suitable for LNG marine traffic, the operational restrictions that would be imposed by the Freeport Pilots on LNG vessel movements through this area, as well as the requirements that the Coast Guard would impose, would minimize the possibility of a hazardous event occurring along the vessel transit area.

26. Regarding the impact on the land required for the Freeport Phase II facilities, we note that the project would be constructed on property leased from the Brazos River Harbor Navigation District and would lie adjacent to or within the boundary of the Phase I site. We note that the project would affect a total of 94.4 acres of land and water. Of this total, approximately 38.3 acres (34.7 acres of land and 3.6 acres of water) would involve new environmental impacts (*i.e.*, not affected by Phase I construction activities). Of the new area to be disturbed, 13.2 acres would be temporarily impacted, while 25.1 acres would be permanently impacted. The EA addresses all temporary and permanent effects and, where necessary, recommends mitigation measures to avoid or minimize the impacts on the environment.

27. Based on the discussion in the EA, the Commission concludes that if the proposed facilities are constructed or operated in accordance with Freeport's application and supplements, and with the environmental conditions contained herein, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment.

28. Any state or local permits issued with respect to the NGA section 3 facilities authorized herein must be consistent with the conditions of this order. The Commission encourages cooperation between the pipelines it regulates, including those authorized to site, construct and operate facilities under NGA section 3, 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.[9] Freeport shall notify the Commission's environmental staff by telephone or facsimile of any environmental noncompliance identified by other federal, state, or local agencies on the same day that such agency notifies Freeport. Freeport shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

Conclusion

29. For all of the reasons discussed herein and pursuant to our NGA section 3 authority, the Commission finds that Freeport's proposal to site, construct, and operate Phase II of its LNG project is not inconsistent with the public interest. Therefore, Freeport is authorized to undertake the siting, construction and operation of Phase II subject to the conditions outlined below and set forth in the Appendix.

30. At a hearing held on September 21, 2006, the Commission on its own motion received and made a part of the record in this proceeding all evidence, including the application and exhibits thereto, submitted in support of the authorization sought herein, and upon consideration of the record,

The Commission orders:

(A) Freeport is authorized under section 3 of the NGA to site, construct and operate additional facilities at its LNG import terminal on Quintana Island, as more fully described in this order and in the application.

(B) Construction of the proposed additional facilities shall be completed and made available for service no later than December 2009.

(C) Freeport shall comply with the environmental conditions listed in the Appendix to this order.[10]

(D) Freeport shall notify the Commission's environmental staff by telephone, e-mail or facsimile of any environmental noncompliance identified by other federal, state,

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

[10] We note that language in environmental condition numbers 71 and 72 in the Appendix to this order has been revised from that in the EA to reflect the Commission's most recent guidance to LNG operators, by letter in June 2006, regarding reporting to Commission staff non-scheduled events and/or safety-related incidents.

or local agencies on the same day that such agency notifies Freeport. Freeport shall file written confirmation of such notification with the Secretary of the Commission within 24 hours.

(E) The City of Freeport's Motion to Intervene Out-of-Time is granted.

By the Commission.

(S E A L)

Magalie R. Salas,
Secretary.

APPENDIX

ENVIRONMENTAL CONDITIONS

As recommended in the EA, this authorization includes the following conditions for the Phase II facilities:

1. Freeport shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Freeport must:
   a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
   b. justify each modification relative to site-specific conditions;
   c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
   d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification**.

2. For LNG facilities, the Director of OEP has delegated authority to take all steps necessary to ensure the protection of life, health, property, and the environment during construction and operation of the Project. This authority shall include:
   a. stop work authority and authority to cease operation; and
   b. the design and implementation of any additional measures deemed necessary to assure continued compliance with the intent of the conditions of the Order.

3. **Prior to any construction**[11], Freeport shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors, and contractor personnel will be informed of the environmental inspector's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EA. **As soon as they are available, and before the start of construction**, Freeport shall file with the Secretary any revised detailed maps/sheets and aerial photographs at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-

[11] In the context of these Environmental Conditions, "construction" refers to the construction of the Phase II facilities.

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

5. Freeport shall file with the Secretary detailed maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all facility relocations, staging areas, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, and documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

6. **At least 60 days before the start of construction**, Freeport shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Freeport will implement the mitigation measures required by the Order. Freeport must file revisions to the plan as schedules change. The plan shall identify:
   a. how Freeport will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
   b. the number of environmental inspectors assigned to the project, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
   c. company personnel, including environmental inspectors and contractors, who will receive copies of the appropriate material;
   d. the training and instructions Freeport will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
   e. the company personnel (if known) and specific portion of Freeport's organization having responsibility for compliance;
   f. the procedures (including use of contract penalties) Freeport will follow if noncompliance occurs; and
   g. 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 mitigation training of onsite personnel;
      (3) the start of construction; and
      (4) the start and completion of restoration.

7. The environmental complaint resolution procedure established for the Freeport Project shall be used for the Freeport LNG Phase II Project.

8. Freeport shall employ an environmental inspector. The environmental inspector shall be:
   a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
   b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 7 above) and any other authorizing document;
   c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
   d. a full-time position, separate from all other activity inspectors;
   e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
   f. responsible for maintaining status reports.

9. Freeport shall file updated status reports prepared by the environmental inspector with the Secretary on a weekly basis **until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
   a. the current construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
   b. a listing of all problems encountered and each instance of noncompliance observed by the environmental inspector(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
   c. corrective actions implemented in response to all instances of noncompliance, and their cost;
   d. the effectiveness of all corrective actions implemented;
   e. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
   f. copies of any correspondence received by Freeport from other federal, state or local permitting agencies concerning instances of noncompliance, and Freeport’s response.

10. Freeport must receive written authorization from the Director of OEP **before commencing service of the Project**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of placing the certificated facilities in service**, Freeport shall file an affirmative statement with the Secretary, certified by a senior company official:
    a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    b. identifying which of the certificate conditions Freeport has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. **Before demolition of the FOC facilities**, Freeport shall file with the Secretary for review and written approval by the Director of OEP a soil and groundwater sampling and mitigation program that includes:
    a. a description of how contaminated soils and groundwater will be identified and tested;
    b. procedures for remediation and disposal of contaminated soils, including transportation to identified, appropriately licensed landfills;
    c. mitigation for potential impacts on existing groundwater supplies;
    d. additional testing that will be performed following removal of the FOC facilities; and
    e. documentation of consultation with appropriate agencies regarding the soil and groundwater sampling and mitigation program.

13. Freeport shall provide an updated SWPPP and stormwater management plan describing the management and disposal plan of the Phase II Project's increase in runoff volume. Freeport shall file these plans with the Secretary **prior to the start of construction**.

14. Freeport shall file with the Secretary a copy of a monitoring plan developed in consultation with the COE for the onsite created wetland.

15. Freeport shall develop a final dredging plan, in consultation with appropriate resource management agencies including the COE and the Port of Freeport, that will provide the details concerning Phase II Project dredging activities, including the amounts of dredged material to be placed in each DMPA, the dredging techniques that will be used, the type and location of the pipeline used to transport

the dredged material, as well as the measures to be employed to mitigate potential adverse effects on water quality, marine habitats and species, and vessel passage. Freeport shall file this plan with the Secretary for review and written approval by the Director of OEP, **prior to the start of Phase II dredging operations**.

16. **Before construction of the Phase II Project facilities**, Freeport shall file with the Secretary the wetland delineation report for the Phase II facilities as verified by the COE and the approved Wetland Mitigation Plan that incorporates wetland impacts associated with the Phase II facilities.

17. Freeport shall extend the duration of the avian studies through the end of the year following commencement of service of the Phase II facilities. Within 30 days of completion of the monitoring, Freeport shall file a report with the Secretary documenting the results of the monitoring and recommending any additional mitigation measures. As a result, the Director of OEP may determine that additional mitigation measures are necessary.

18. Freeport shall not begin construction activities **until:**
    a. The Commission staff completes any necessary consultations with the FWS and NOAA Fisheries; and
    b. Freeport receives written notification from the Director of OEP that construction and/or implementation of the conservation measures may begin.

19. Freeport shall not begin construction any of the Phase II Project facilities **until** it files a copy of the consistency determination issued by the Coastal Coordination Council with the Secretary.

20. Freeport shall not begin construction of the Phase II Project **until** it has filed with the Secretary a statement for review and written approval by the Director of OEP that it would comply with all requirements of the Final General Conformity Determination.

21. Freeport shall file a noise survey with the Secretary **no later than 60 days** after placing the Phase II facilities into service. If the noise attributable to the operation of the combined Phase I and Phase II facilities at the Freeport terminal exceeds an L_{dn} of 55 dBA at any nearby NSA, Freeport shall file a report on what changes are needed and shall install additional noise controls to meet that level **within 1 year** of the in-service date. Freeport shall confirm compliance with this requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.

The following measures shall apply to the LNG terminal design and construction details. Information pertaining to these specific requirements shall be filed with the Secretary for review and approval by the Director of OEP either: prior to initial site preparation; prior to construction of final design; prior to commissioning; or prior to commencement of service as indicated by each specific measure. This information shall be submitted a minimum of 30 days before approval to proceed is required.

22. A complete plan and list of the hazard detection equipment shall be filed **prior to initial site preparation**. The information shall include a list with the instrument tag number, type and location, alarm locations, and shutdown functions of the proposed hazard detection equipment. Plan drawings shall clearly show the location of all detection equipment.

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

24. A complete plan and list of the fixed and wheeled dry-chemical, fire extinguishing, and high expansion foam hazard control equipment shall be filed **prior to initial site preparation**. The information shall include a list with the equipment tag number, type, size, equipment covered, and automatic and manual remote signals initiating discharge of the units. Plan drawings shall clearly show the planned location of all fixed and wheeled extinguishers.

25. Facility plans showing the proposed location of, and area covered by, each monitor, hydrant, deluge system, hose, and sprinkler, as well as piping and instrumentation diagrams, of the fire water system shall be filed **prior to initial site preparation**.

26. A copy of the hazard design review and list of recommendations that are to be incorporated in the final facility design shall be filed **prior to initial site preparation**.

27. The design and location of the BOG condenser pressure relief connection shall be re-evaluated and filed **prior to initial site preparation**.

28. Procedures shall be developed for offsite contractors' responsibilities, restrictions, limitations and supervision of these contractors by Freeport staff **prior to initial site preparation**.

29. Freeport shall provide detailed drawings of the impoundment systems for the above ground transfer lines, including cross sections prior to **initial site preparation**.

30. The **final design** of the hazard detection equipment shall identify manufacturer and model.

31. The **final design** of the fixed and wheeled dry-chemical, fire extinguishing, and high expansion foam hazard control equipment shall identify manufacturer and model.

32. The **final design** shall include drawings and specifications of the spill protection system to be applied to the LNG tank roof.

33. The **final design** shall include drawings and specifications of the LNG storage tank piping support structure and the support of horizontal piping at grade.

34. The **final design** shall include details of the LNG tank tilt settlement and differential settlement limits between each LNG tank and piping and procedures to be implemented in the event that limits are exceeded.

35. The **final design** shall include details of the equipment and instrumentation for the measurement of translational and rotational movement of the inner vessel for use during and after cool down.

36. The **final design** shall include details of the LNG flow measurement system provided for the top and bottom fill to each tank.

37. The **final design** shall include a manual block valve for each liquid unloading arm, located between the arm and isolation valve, or equivalent measures shall be provided for the safe isolation an unloading arm.

38. The **final design** shall include details of the unloading line piping supports, restraints, expansion joints and cool down procedure. Procedures shall include movement limits for cool down and operation and procedures to be implemented in the event that limits are exceeded.

39. The **final design** shall include details of the pipe supports and restraints designed to prevent damage to piping systems and equipment in the event of a storm surge anticipated for a class 4 hurricane.

40. The **final design** shall include details of the boiloff gas flow measurement system provided for each tank.

41. The **final design** shall include provisions to recover boil off gas, under all conditions, in the event that the send out vaporization system is not in operation.

42. The **final design** shall include automatic shutoff isolation valves at the suction and discharge of the each boiloff blower and each boiloff compressor.

43. The **final design** shall include automatic shutoff valves in the booster pump inlet line from the suction header.

44. The **final design** shall include a 900# class minimum flow recycle line from the booster pumps to the LNG storage tanks.

45. The **final design** shall include a recycle line from the end of the booster pump suction header to storage, to maintain flow through the BOG condenser and suction header.

46. The **final design** shall include P&IDs and drawings of the meter station.

47. The **final design** shall include a fire protection evaluation carried out in accordance with the requirements of NFPA 59A, chapter 9.1.2.

48. The **final design** shall include details of the shut down logic, including cause and effect matrices for alarms and shutdowns.

49. The **final design** shall include emergency shutdown of equipment and systems activated by hazard detection devices for flammable gas, fire, and cryogenic spills, when applicable.

50. The **final design** shall include details of the air gaps to be installed downstream of all seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system. Each air gap shall vent to a safe location and be equipped with a leak detection device that: shall continuously monitor for the presence of a flammable fluid; shall alarm the hazardous condition; and shall shutdown the appropriate systems.

51. The **final design** shall include a HAZOP review of the completed design. A copy of the review and a list of the recommendations shall be filed.

52. The P&IDs in the **final design** shall show and number all valves including drain, vent, main, and car sealed.

53. The **final design** shall specify that the LNG tank carbon steel piping support plates and connections to piping supports shall be designed to ensure that corrosion protection is adequately provided and provisions for corrosion monitoring and maintenance of carbon steel attachments are to be included in the design and maintenance procedures.

54. The **final design** shall include safeguards to be installed to protect above ground fire water piping, including post indicator valves, from inadvertent damage.

55. The **final design** shall specify that flammable gas and UV/IR hazard detectors shall be equipped with local instrument status indication as an additional safety feature.

56. The **final design** shall specify that all hazard detection equipment shall include redundancy and fault detection and fault alarm monitoring in all potentially hazardous areas and enclosures.

57. The **final design** shall specify that an intrusion detection system shall be installed to enhance the proposed security system.

58. The **final design** shall include provisions to ensure that glycol/water circulation is in operation at all times when LNG is present in the booster pump discharge piping or when the temperature in the LNG inlet channel to any vaporizer is below 0°F.

59. All valves including drain, vent, main, and car sealed valves shall be tagged in the field during construction **and prior to commissioning**.

60. The design details and procedures to record and to prevent the tank fill rate from exceeding the maximum fill rate specified by the tank designer shall be filed **prior to commissioning**.

61. A tabulated list of the proposed hand-held fire extinguishers shall be filed **prior to commissioning.** The information shall include a list with the equipment number, type, size, number, and location. Plan drawings shall include the type, size, and number of all hand-held fire extinguishers.

62. Operation and Maintenance procedures and manuals, as well as safety procedure manuals, shall be filed **prior to commissioning**.

63. The contingency plan for failure of the LNG tank outer containment shall be filed **prior to commissioning.**

64. A copy of the criteria for horizontal and rotational movement of the inner vessel for use during and after cool down shall be filed **prior to commissioning**.

65. The maintenance procedures to be filed **prior to commissioning** shall state that a foundation elevation survey of all LNG tanks shall be made on an annual basis.

66. The Commission staff shall be notified of any proposed revisions to the security plan and physical security of the facility **prior to commencement of service**.

67. Progress on the construction of the LNG terminal shall be reported in **monthly** reports filed with the Secretary. Details shall include a summary of activities, problems encountered and remedial actions taken. Problems of significant magnitude shall be reported to the Commission **within 24 hours**.

In addition, the following measures shall apply throughout the life of the facility:

68. The facility shall be subject to regular Commission staff technical reviews and site inspections on at least an annual basis or more frequently as circumstances indicate. Prior to each Commission staff technical review and site inspection, the Company shall respond to a specific data request including information relating to possible design and operating conditions that may have been imposed by other agencies or organizations. Up-to-date detailed piping and instrumentation diagrams reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below, including facility events that have taken place since the previously submitted annual report, shall be submitted.

69. **Semi-annual** operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions, abnormal operating experiences, activities (including ship arrivals, quantity and composition of imported LNG, vaporization quantities, boil-off/flash gas, etc.), plant modifications including future plans and progress thereof. Abnormalities shall include, but not be limited to: unloading/shipping problems, potential hazardous conditions from offsite vessels, storage tank stratification or rollover, geysering, storage tank pressure excursions, cold spots on the storage tanks, storage tank vibrations and/or vibrations in associated cryogenic piping, storage tank settlement, significant equipment or instrumentation malfunctions or failures, non-

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

70. In the event the temperature of any region of any secondary containment, including imbedded pipe supports, becomes less than the minimum specified operating temperature for the material, the Commission shall be notified **within 24 hours** and procedures for corrective action shall be specified.

71. Significant non-scheduled events, including safety-related incidents (*i.e.*, LNG or natural gas releases, fires, explosions, mechanical failures, unusual over pressurization, and major injuries) and security related incidents (*i.e.*, attempts to enter site, suspicious activities) shall be reported to Commission staff **within 24 hours**. In the event an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made **immediately**, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. In all instances, notification shall be made to Commission staff within **24 hours**. This notification practice shall be incorporated into the LNG facility's emergency plan. Examples of reportable LNG-related incidents include:
    a. fire;
    b. explosion;
    c. estimated property damage of $50,000 or more;
    d. death or personal injury necessitating in-patient hospitalization;
    e. free flow of LNG that results in pooling;
    f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability, structural integrity, or reliability of an LNG facility that contains, controls, or processes gas or LNG;
    g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes gas or LNG;
    h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes gas or LNG to rise above its maximum allowable operating pressure (or working pressure for LNG facilities) plus the build-up allowed for operation of pressure limiting or

control devices;

i. a leak in an LNG facility that contains or processes gas or LNG that constitutes an emergency;
j. inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank;
k. any condition that could lead to a hazard and cause a 20 percent reduction in operating pressure or shutdown of operation of a pipeline or an LNG facility;
l. safety-related incidents to LNG vessels occurring at or en route to and from the LNG facility; or
m. an event that is significant in the judgment of the operator and/or management even though it did not meet the above criteria or the guidelines set forth in an LNG facility's incident management plan.

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

73. Freeport shall file a revised spill impoundment/vapor control design to minimize the possibility of flammable vapors extending over the ExxonMobil property line. The revised design shall be filed with the Secretary a minimum of 30 days prior to initial site preparation for review and approval by the Director of OEP.

74. At **least 30 days** prior to initial site preparation, Freeport shall file details on the relocated Phase I dock sump and the trough leading to that sump for the review and approval of the director of OEP. This information shall include dimensions, locations, construction materials, and for the sump, thermal and vapor exclusion zone calculations. Additionally, the method for controlling vapor dispersion from the trough shall be filed at the same time.

75. **Prior to commissioning**, Freeport shall coordinate, as needed, with the Coast Guard to define the responsibilities of Freeport's security staff in supplementing other security personnel and in protecting the LNG ships and terminal as expanded by the Phase II Project.

76. Freeport shall develop an Emergency Response Plan (including evacuation) and coordinate procedures with the Coast Guard, state, county and local emergency planning groups, fire departments, state and local law enforcement, and appropriate federal agencies. This plan shall include at a minimum:

a. designated contacts with state and local emergency response agencies;
b. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
c. procedures for notifying residents and recreational users within areas of potential hazard;
d. evacuation routes/methods for residents along the route of the LNG vessel transit;
e. locations of permanent sirens and other warning devices; and
f. an "emergency coordinator" on each LNG vessel to activate sirens and other warning devices.

The Emergency Response Plan shall be filed with the Secretary for review and written approval by the Director of OEP **prior to initial site preparation for the Phase II facilities**. Freeport LNG shall notify the Commission staff of all planning meetings in advance and shall report progress on the development of its Emergency Response Plan at **3-month** intervals.

77. The Emergency Response Plan shall include a Cost-Sharing Plan identifying the mechanisms for funding all project-specific security/emergency management costs that would be imposed on state and local agencies. In addition to the funding of direct transit-related security/emergency management costs, this comprehensive plan shall include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base. This plan shall be filed with the Secretary for review and written approval by the Director of OEP **prior to initial site preparation**.

78. Freeport shall **annually** review its waterway suitability assessment relating to LNG vessel traffic for the project; update the assessment to reflect changing conditions which may impact the suitability of the waterway for LNG marine traffic; provide the updated assessment to the cognizant Captain of the Port/Federal Maritime Security Coordinator (COTP/FMSC) for review and validation if appropriate, further action by the COTP/FMSC relating to LNG vessel traffic; and provide a copy to the Commission staff.

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