

APPENDIX C

SAFETY ADVISORY REPORT AND MOU BETWEEN OREGON LNG AND OREGON DEPARTMENT OF ENERGY

Appendix C1: Response of the Federal Energy Regulatory Commission to the Safety Advisory Report of the Oregon Department of Energy for the Oregon LNG Terminal Project and ODE Safety Advisory Report

Appendix C2: MOU between Oregon LNG and ODE

APPENDIX C1

RESPONSE OF THE FEDERAL ENERGY REGULATORY COMMISSION TO THE SAFETY ADVISORY REPORT OF THE OREGON DEPARTMENT OF ENERGY FOR THE OREGON LNG TERMINAL PROJECT AND ODE SAFETY ADVISORY REPORT

1.0 INTRODUCTION

The Natural Gas Act (NGA), as modified by the Energy Policy Act of 2005 (EPAAct), requires that the Federal Energy Regulatory Commission (FERC or the Commission) consult with the state in which a liquefied natural gas (LNG) terminal is proposed to be located regarding state and local safety matters. The governor of Oregon designated the Oregon Department of Energy (ODE) as the state agency that the FERC should consult with on safety and siting matters for the Oregon LNG Terminal and Pipeline Project. On November 10, 2008, the ODE submitted its Safety Advisory Report to the FERC. In the report, ODE addressed state and local considerations for the project.

The EPAAct also stipulates that before the Commission may issue an order authorizing an LNG terminal, it must “review and respond specifically” to the safety matters raised by the state agency designated as the lead for the state and local safety matters. Table C1-1 of this appendix provides the FERC’s response to the ODE Safety Advisory Report for the Oregon LNG Terminal Project. Section 3.0 contains the Safety Advisory Report.

2.0 FERC RESPONSE TO THE SAFETY ADVISORY REPORT

The ODE identified the following key categories of potential safety concerns in the Safety Advisory Report:

- Emergency Planning and Response;
- Security Zone;
- Seismic Design;
- Terminal Design;
- Hazard Identification;
- Quality Assurance;
- Safety Issues; and
- Emergency Response Capabilities near the Facility Location.

The Safety Advisory Report included both general and specific safety matters that ODE requested to be included in the FERC’s review of the Oregon LNG application. The FERC’s specific responses to those concerns are presented in tabular format in table C1-1 in the order of the issues presented in the report. Where appropriate, the response identifies the section of the EIS where information on the issue of concern is addressed.

As described in sections 1.0 and 2.1 of the EIS, the Coast Guard has shared responsibility with FERC in reviewing the Oregon LNG Terminal Project and has summarized portions of its review in its Letter of Recommendation (LOR). In addition to including the LOR in the EIS, we have summarized portions of it in the EIS. As a result, for some concerns presented in the Safety Advisory Report, we have noted that the issue is addressed in the LOR, as well as the specific section of the EIS where the concern is addressed.

TABLE C1-1

The FERC's Responses to Concerns Presented in the ODE Safety Advisory Report for the Oregon LNG Terminal Project

Topic	Issue	Response
Emergency Planning and Response	The FERC should require an applicant to commit to covering 100 percent of the safety and security costs directly associated with the LNG vessel transits, the facility, and the pipeline.	We included a recommendation that the Emergency Response Plan 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. This is discussed in section 4.1.13.9 of the EIS.
	The safety/security zones proposed for the vessel in transit and the vessel at dock must be sufficiently calculated and justified. The applicant or the Coast Guard must thoroughly explain any changes to those zones that might accompany heightened national security as well as any resulting impacts.	In its LOR Analysis, the Coast Guard has recommended a 500-yard moving safety/security zone around the LNG carrier during transit of the waterway where no other vessel may enter without first obtaining permission from the COTP. While the ship is moored at the terminal, there will be a 200-yard security zone around the vessel. The expectation is that the Captain of the Port's (COTP) Representative would work with the pilots and patrol assets to control traffic, and would allow vessels to transit the Safety/Security zone based on a case-by-case assessment conducted on the scene. Escort resources would be used to contact and control vessel movements such that the LNG carrier is protected.
	<p>The FERC should require the applicant to complete an acceptable Emergency Response Plan prior to any Commission decision on its application and in conjunction with the Coast Guard's validation of the WSA.</p> <p>The applicant's Emergency Response Plan must be developed in full cooperation with state and local authorities.</p> <p>The applicant's Emergency Response Plan must sufficiently and accurately characterize the emergency response capabilities along the vessel transit route and near the facility, including response times and must include measures to mitigate for any safety gaps.</p>	In accordance with the Energy Policy Act of 2005, this plan must be filed prior to any project construction. We included a recommendation in section 4.1.13.9 that, prior to initial site preparation, Oregon LNG should 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.
	<p>The applicant's Emergency Response Plan must include all potentially affected communities along the LNG vessel route and near the terminal in a comprehensive, thoroughly publicized warning system.</p> <p>The applicant's Emergency Response Plan must account for potential population increases due to tourism.</p>	Part of the Emergency Response Plan (to be developed by Oregon LNG) must include at a minimum: procedures for notifying residents and recreational users within areas of potential hazard and locations of permanent sirens and other warning devices. Also, the recommendation we included in section 4.1.13.9 would require the involvement of local emergency planning groups in developing the Emergency Response Plan.

TABLE C1-1

The FERC's Responses to Concerns Presented in the ODE Safety Advisory Report for the Oregon LNG Terminal Project

Topic	Issue	Response
	<p>Any FERC authorization for an LNG terminal and associated pipeline in Oregon must fully comply with Oregon state and local laws and regulations, including energy facility siting laws.</p>	<p>As a matter of foreign commerce, the importation or exportation of LNG is subject to federal, not state, control. Although the Commission has exclusive jurisdiction over the proposed project, certain permits, approvals, and licenses are the responsibility of other federal agencies and state and local authorities. The Commission encourages cooperation between project applicants and these agencies. However, any state or local permits issued with respect to the jurisdictional facilities authorized by the Commission must be consistent with the conditions of the approving Order.</p>
<p>Seismic Design</p>	<p>The Oregon Department of Geology (DOGAMI) has recommended that the design basis tsunami height be raised and concerns over the liquefiable soils at the terminal site be addressed.</p>	<p>In the DEIS, Section 4.1.1.1, subsections titled Seismic-related Hazards, Seismic-induced Subsidence, Tsunami, and Soil Liquefaction and Settlement provide a detailed description of the design basis for the tsunami height and addresses concerns over liquefiable soils at the Project. The design height is based upon a site specific tsunami study prepared by Coast and Harbor in 2013. This analysis predicts that the design tsunami elevation would range between +8 and +16 feet (NAVD 88) at the terminal site considering the tsunami occurred at mean high water tidal elevation. It is estimated during the CSZ earthquake, the terminal site would lower 7.6 feet due to tectonic subsidence. Therefore the effective water surface elevation would range between +15.6 feet and +23.6 feet considering tsunami wave, tidal, and subsidence effects.</p> <p>Earthquake hazard maps of the Astoria-Warrenton area (DOGAMI, 1999) indicate that the terminal area has a high risk for soil liquefaction. Oregon LNG's geotechnical assessment (CH2M HILL, 2013a) concluded that settlement of up to 2.4 feet may occur from liquefaction at the terminal during a large earthquake. The design basis return period is 2500 years.</p>
<p>Terminal Design</p>	<p>In Oregon LNG's application, Resource Report 11 references the 2001 edition of NFPA 59A, but the NFPA website states that the current edition is 2009. FERC should use the latest edition as its acceptance criteria.</p>	<p>On April 9, 2004, the DOT revised 49 CFR 193 to incorporate the 2001 edition of NFPA 59A. Portions of the 2006 edition of NFPA 59A, related to storage tank seismic design, have also been incorporated into 49 CFR 193. To date, the DOT has not incorporated the 2009 edition into the CFR and FERC will continue to use the approved criteria in its review process.</p>
<p>Hazard Identification</p>	<p>In Oregon LNG's application, Resource Reports 1 and 11 state that the terminal would be designed to accommodate ships with capacities up to 250,000 m³. The reference at the end of Resource Report 11 includes the original 2004 Sandia Report that reports the zones of concern based on ships smaller than 150,000 m³. FERC should base its analysis on the most recent Sandia Report and include a recommendation to limit ships to be no larger than those assumed in any heat flux and vapor dispersion calculations.</p>	<p>The Coast Guard has taken into account the hazards associated with larger ships in accordance with NVIC 01-11 which references Sandia 2008. Sandia 2008 specifically addresses larger ships such as those being proposed by Oregon LNG. The updated Sandia report is discussed in Section 4.1.13.7.</p>

TABLE C1-1

The FERC's Responses to Concerns Presented in the ODE Safety Advisory Report for the Oregon LNG Terminal Project

Topic	Issue	Response
	<p>The FERC should verify that the assumption of pure methane cargoes is not representative of actual cargoes and may not be conservative.</p>	<p>The presence heavier hydrocarbons such as ethane and propane and imported LNG with concentrations from 86 to 96 percent methane are discussed in section 4.1.13.6 of the EIS.</p>
<p>Quality Assurance</p>	<p>The State of Oregon expects the Commission to describe and impose a condition requiring Oregon LNG to adopt a rigorous and comprehensive quality assurance program applicable during both construction and operation of the import terminal.</p>	<p>Quality assurance and control programs to monitor material selection, equipment fabrication, and installation would be provided by the Engineering, Procurement, and Construction (EPC) contractor selected by the project applicant if the project is authorized. In addition, the applicant would also have a similar program to provide oversight of the EPC. FERC staff would review these programs during periodic construction inspections. We have also included a condition requiring Oregon LNG to provide its quality assurance and quality control plans for our review and approval.</p> <p>During the operational phase of the proposed terminal, Oregon LNG would be required to file with the Secretary semi-annual operational reports that 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.</p> <p>The proposed terminal would also be subject to regular FERC staff technical reviews and site inspections on at least an annual basis or more frequently if circumstances indicate.</p>
<p>Safety Issues</p>	<p>The California Energy Commission advisory report for the proposed Long Beach import terminal suggests a lower heat flux level of 1.5 kw/m². Oregon LNG should calculate the distance to this heat flux level for a design basis event and issue a figure showing the results.</p>	<p>The DOT examined this issue during the rulemaking process which established the thermal exclusion zone requirements. In their Advance Notice of Proposed Rulemaking (Notice No. 77-4, Docket No. OPSO-46), which was used to develop 49 CFR Part 193, the DOT suggested 3.1 kw/m² (1,000 Btu/ft²-hr) as an acceptable level for direct human exposure to thermal flux. After the public review period, it was determined that the evidence and information supported the use of 5 kw/m² (1,600 Btu/ft²-hr) as the limit for direct human exposure. Also, in a formal interpretation issued on July 7, 2010, DOT confirmed that the thermal flux levels prescribed in the 2001 edition of NFPA 59A comply with the regulations in 49 CFR 193.2057.</p>

TABLE C1-1

The FERC's Responses to Concerns Presented in the ODE Safety Advisory Report for the Oregon LNG Terminal Project

Topic	Issue	Response
Additional Comments on the Associated Pipeline	The pipeline associated with OLNG goes through more populated lands than the Pacific Connector pipeline that was associated with JCEP. FERC should take into account the rapid population growth close to Warrenton and in western Washington County, particularly near Forest Grove. The same comment would apply to portions of Marion County near Woodburn. This would make it appropriate for FERC to require pipeline design and block valve spacing for a higher population category. Category 3 should be a minimum, and even category two design specifications would be appropriate in sections near these rapidly growing exurbs.	As described under pipeline safety in section 4.1.13.13 of the EIS, under a <i>Memorandum of Understanding on Natural Gas Transportation Facilities</i> dated January 15, 1993 between the DOT and FERC, the DOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of FERC's regulations requires that an applicant certify that it will design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with federal safety standards and plans for maintenance and inspection. Alternatively, an applicant must certify that it has been granted a waiver of the requirements of the safety standards by the DOT in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act. The FERC accepts this certification and does not impose additional safety standards for pipeline facilities.
	FERC should also note that in Oregon, the Public Utility Commission (OPUC) has inspection and enforcement authority for regulations of USDOT, under a delegation from USDOT. The OPUC has implemented pipeline safety regulations that include, and sometimes exceed, the USDOT regulations at 49 CFR 192. FERC should consult directly with the pipeline safety section of the OPUC for a full comparison. The State of Oregon expects that wherever there is a difference between USDOT and OPUC pipeline safety rules, the stricter of the two will apply.	Section 4.1.13.13 of the EIS states that Title 49, U.S.C. Chapter 601 provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. A state may also act as DOT's agent to inspect interstate pipeline facilities within its boundaries; however, the DOT is responsible for enforcement actions. In Oregon, the Public Utility Commission (OPUC) has inspection and enforcement authority for regulations of DOT, under a delegation from DOT. The OPUC has implemented pipeline safety regulations that include, and sometimes exceed, the USDOT regulations at 49 CFR 192.

TABLE C1-1

The FERC's Responses to Concerns Presented in the ODE Safety Advisory Report for the Oregon LNG Terminal Project

Topic	Issue	Response
<p>Emergency Response Capabilities Near the Facility Location</p>	<p>The Emergency Response Plan must address all identified emergency situations, and that all costs attributable to insuring public safety must be borne by the applicant. The State is also concerned about the effect of impasse during negotiations for the Emergency Response Plan and urges the Commission to adopt a clear, expeditious process for addressing disagreements between the applicant and state and local governments.</p>	<p>In accordance with the Energy Policy Act of 2005, this plan must be filed prior to any project construction. We included a recommendation in section 4.1.13.9 that Oregon LNG 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. The EIS includes a Cost-Sharing Plan that would identify the mechanisms for funding all project-specific security/emergency management costs that would be imposed on state and local agencies.</p> <p>As an update in an email communication from the ODE to FERC on October 30, 2014 (FERC eLibrary Accession number 20141103-4002), ODE staff indicates that Oregon LNG has committed to development of the Memorandum of Understanding, and the development of the plans and programs included in the MOU. ODE staff indicates that the negotiated MOU would specify documents to be developed and executed by ODE and Oregon LNG in order for ODE to reach a determination that the emergency preparedness approach committed to by Oregon LNG meets state safety and security standards, including, but not limited to: 1) Emergency Response Plan; 2) Resource List that identifies gaps in personnel, facilities, equipment and systems needed to implement the ERP; and 3) Cost-Share Agreement with state and local agencies for activities and resources identified in the ERP and Resource List.</p>
	<p>FERC should make the development of the Emergency Response Plan as transparent to the public as possible, including the essential elements of the plan. Although details of the WSA and Emergency Response Plan are withheld from public disclosure, information regarding measures to protect the public during an event should be a part of public outreach and should be available before the issuance of a FERC construction permit.</p>	<p>Information in the Emergency Response Plan pertaining to items such as off-site emergency response and procedures for public notification and evacuation would be subject to public disclosure. See section 4.1.13.9 of the EIS.</p>



Oregon

Theodore R. Kulongoski, Governor



OREGON
DEPARTMENT OF
ENERGY

VIA Electronic Filing

November 10, 2008

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426
Re: Oregon LNG Project, Docket No. CP09-6 and CP09-7

Dear Ms. Bose:

On October 10, 2008, Oregon LNG filed an application for construction of a terminal for importation of liquefied natural gas (LNG). Oregon LNG will be an onshore LNG receiving terminal on the east bank of the Skipanon Peninsula near the confluence of the Skipanon and Columbia Rivers at Warrenton, Clatsop County, Oregon. The proposed facility includes a turning basin and berth for unloading LNG carriers and facilities to receive and regasify LNG.

The sendout pipeline associated with this project is the proposed Oregon Pipeline, approximately 121 miles of 36-inch pipeline from Warrenton to Molalla OR. This pipeline will interconnect at the Molalla Gate Station near Molalla, Oregon, with other natural gas pipelines including Northwest Natural Gas Co.'s South Mist Pipeline Extension and Williams' Northwest Pipeline.

The pipeline design includes one electrically driven gas compressor station just south of the Timber area on Longview Fiber land in Washington County, Oregon.

The Energy Policy Act of 2005, enacted on August 8, 2005, specifies in Section 311(d) that the Governor of a state where a proposed LNG terminal would be located shall designate a state agency to consult with the Federal Energy Regulatory Commission regarding applications and that this state agency may prepare a safety advisory report that addresses state and local safety considerations. This provision in the Energy bill appears to be specific to the terminal and not to any associated pipeline. The report is due 30 days from the application filing date.

The Governor of Oregon has designated the Oregon Department of Energy as the agency responsible for preparation of a safety advisory report for the proposed Bradwood Landing LNG terminal. Therefore, enclosed for filing in the above-mentioned proceeding, please find an electronic copy of the safety advisory report for the proposed LNG terminal. If you have any questions in this matter, please contact Tom Stoops at (503) 378-8328 or tom.stoops@state.or.us.

Sincerely,

Ken Niles, Assistant Director
Nuclear Safety and Energy Facility Siting

SAFETY ADVISORY REPORT
ON THE PROPOSED
OREGON LNG LIQUEFIED NATURAL GAS TERMINAL
SKIPANON PENSINSULA
NEAR WARRENTON, OREGON

*PREPARED BY THE STAFF
OF THE OREGON DEPARTMENT OF ENERGY*

November 10, 2008

**SAFETY ADVISORY REPORT
ON THE PROPOSED
OREGON LNG LIQUEFIED NATURAL GAS TERMINAL
SKIPANON PENSINSULA
NEAR WARRENTON, OREGON**

The Oregon Department of Energy (ODOE) issues this Safety Advisory Report on behalf of the State of Oregon pursuant to section 311(d) of the Energy Policy Act of 2005 (the Act). The report concerns the application to the Federal Energy Regulatory Commission (FERC) by Oregon LNG, LLC, to build an onshore LNG receiving terminal on the east bank of the Skipanon Peninsula near the confluence of the Skipanon and Columbia Rivers at Warrenton, Clatsop County, Oregon. The proposed facility includes a turning basin and berth for unloading LNG carriers and facilities to receive and regasify LNG and a 121 mile sendout pipeline from Warrenton to Molalla OR. Oregon LNG filed its application with FERC on October 10, 2008.

The Act allows the state to file an advisory report that identifies “state and local safety considerations” within 30 days of the date the application is filed. The “safety” information solicited in the advisory report is largely repetitive of information that Oregon LNG itself provides in its application to FERC in its terminal application and in its Waterway Suitability Assessment to the Coast Guard. It is information that Oregon LNG also must provide in its emergency response plan to be developed in conjunction with the Coast Guard, the state, and appropriate local jurisdictions prior to any construction.

The State of Oregon has been intimately involved in reviewing and commenting on Oregon LNG’s pre-filing and application resource reports, and is involved with the Coast Guard in reviewing the project’s WSA. To the extent that the State disagrees with the information Oregon LNG has provided or will provide on safety issues in those venues, the state will pursue corrections or changes through the above review processes. For example, Oregon LNG has not accurately or adequately characterized in its Waterway Suitability Assessment (WSA) the area’s emergency response capabilities. The Department will work with the Coast Guard, other state agencies and local jurisdictions to correct the information under the WSA process.

The State considered providing FERC with specific scenarios for evaluating accidental or intentional releases of LNG from a vessel or the facility itself. Again, however, such scenarios play a role both in the WSA and in the forthcoming emergency response planning. Moreover, based on recent Commission approvals of LNG terminal projects, the State believes the Commission will find that the risk of any potential LNG release scenario can be reduced to an acceptable minimum.

On June 15, 2006, the Commission approved three new LNG terminal projects: Sempra’s Port Arthur LNG in Port Arthur, Texas; Cheniere’s Creole Trail LNG in Cameron Parish, Louisiana; and BP America Production Company’s Crown Landing LNG in Logan Township in New Jersey. The language in the Commission’s Creole Trail decision about the risk of an accidental LNG release is mirrored in the other two decisions:

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 FEIS determined that the risk to the public from accidental causes is negligible.

Further, the language in the Commission’s Creole Trail decision about the risk of an intentional LNG release is also mirrored in the other two decisions:

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

For the above reasons, what the State provides in this advisory report largely is broad safety policy statements about the proposed Oregon LNG project along with a limited amount of specific, technical comments. In addition, the State is attaching one letter each from the cities of Warrenton and Astoria and a package of information from Clatsop County for FERC’s consideration. As well, the State of Oregon incorporates by reference the safety comments included in previous filings to the FERC docket, including CP06-365 Bradwood Landing and CP07-441 Jordan Cove.

Although the application to FERC is limited in scope to the LNG terminal and associated pipeline, we consider the risks from a release of LNG on the mouth of the Columbia River to be among the most significant safety concerns associated with the facility. The safety of the LNG terminal is strongly connected to the question of safety on the waterway and in the nearby communities of Warrenton and Astoria.. We expect FERC to address issues and concerns raised by stakeholders in those communities and to consider the safety of those communities in determining whether to approve the LNG terminal and associated pipeline.

Each of the state and local agencies in Oregon, whether or not they contributed to this advisory report, reserve their right to file additional joint or separate comments and/or evidence on safety and other issues.

State of Oregon General Policy Comments

- 1. FERC should require an applicant to commit to 100 percent of the safety and security costs directly associated with the LNG vessel transits, the facility and the pipeline.**

Under Section 311(e)(2), an emergency response plan to be developed prior to construction must include a cost-sharing plan that includes a “description of any direct cost reimbursements that the applicant agrees to provide to any State and local agencies with responsibility for security and safety at the LNG terminal and in proximity to vessels that serve the facility.” The State understands and appreciates that Oregon LNG has agreed thus far to pick up the costs of most safety and security needs that the company has identified as necessary. However, the local jurisdictions are not in a position to dedicate their own limited funds to any LNG safety and security measures that may be required. In addition, local jurisdictions may not agree with an applicant about the level of resources required. An applicant should first be required to pay for an adequate assessment of safety and security needs and then pay for all infrastructure, planning, emergency exercises and other associated costs identified in an emergency response plan agreed to by the state and local jurisdictions. Should FERC not require the applicant to commit to 100 percent of the costs, FERC should explain its authority for imposing such costs on local jurisdictions and the state.

- 2. The safety/security zones proposed for the vessel in transit and the vessel at dock must be sufficiently calculated and justified. The applicant or Coast Guard must thoroughly explain any changes to those zones that might accompany heightened national security as well as any resulting impacts.**

Some area residents have expressed concern that the safety/security zones will be so large that they will impact traffic on the Columbia River. Others have expressed concern that the safety/security zones will be too small, sized to avoid the above concern rather than for adequate safety protection. Any zones proposed should provide a rationale for their size.

- 3. FERC should require an applicant to complete an acceptable emergency response plan prior to any Commission decision on an application and in conjunction with the Coast Guard’s validation of the Waterway Suitability Assessment.**

Under Section 311(e)(1), FERC will not require Oregon LNG to create an emergency response plan until after a positive decision by the Commission and just before any final approval to begin construction. However, to the extent that Oregon LNG’s Waterway Suitability Assessment relies on the creation of a satisfactory emergency response plan to ensure that the Columbia River is suitable for LNG, that emergency response plan must be available for review prior to any decisions on both the WSA and the FERC application. Again learning from the Bradwood Landing and the JCEP experience, the recommended conditions in the DEIS would require the applicant for that facility to develop the Emergency Response Plan (ERP) prior to construction, but after the Commission’s decision to approve the project. It would be illogical for either the Commission or the Coast Guard to decide that LNG is safe for the region without knowing first if a suitable emergency response plan can be enacted along the vessel route and at the facility.

- 4. The applicant’s Emergency Response Plan must be developed in full cooperation with state and local authorities.**

Emergency response planning must be an integrated, carefully developed effort that involves every entity that is potentially affected by the LNG import terminal.

- 5. The applicant's Emergency Response Plan must sufficiently and accurately characterize the emergency response capabilities along the vessel transit route and near the facility, including response times. The Plan must mitigate for any safety gaps.**

Thus far, the state and local jurisdictions have not reached agreement as to which jurisdiction will have primary responsibility and authority in the event of an accident or intentional breach.

Agreement also has not been reached on the resource gaps, and proper allocation of supplemental resources. The USCG and FERC should not find that the waterway is suitable until it is known that these issues have been resolved.

- 6. The applicant's Emergency Response Plan must include all potentially affected communities along the LNG vessel route and near the terminal in a comprehensive, thoroughly publicized warning system.**

Any community located within one of the three Sandia zones of impact must be considered in emergency response plans, including access to a reverse 911 system and sirens.

- 7. The applicant's Emergency Response Plan must account for potential population increase due to tourism.**

According to a 2004 Clatsop County Grand Jury Report, Clatsop County's population can increase by 50-to-100 percent or more during high tourism season. Depending on the location of those visitors, the influx may bring challenges for LNG emergency response education as well as LNG ship transit education.

- 8. Any FERC authorization for an LNG terminal and associated pipeline in Oregon must fully comply with Oregon state and local laws and regulations, including energy facility siting laws.**

In particular, the State of Oregon requires large energy facilities to provide a bond or letter of credit to ensure that the proposed site can be restored to a useable, non-hazardous condition. We consider the bond or letter of credit to be a safety precaution against a potentially abandoned or otherwise vacated site. Thus far, the applicant does not appear to have addressed this issue in its application materials.

State of Oregon Specific Comments

Seismic Design

The Department is particularly concerned about the potential for tsunami. Of the three LNG terminals proposed along the Oregon coast since 2004, the Oregon LNG site is by far the most susceptible to tsunami. This is partly because the location facing the mouth of the Columbia is in the direct path of a design basis tsunami, with no breakwater or other shielding. Members of the Oregon Department of Geology (DOGAMI) went to Sumatra after the 2005 tsunami, and have recommended that design basis tsunami height be raised considerably. Also, DOGAMI has raised serious concern over the liquefiable soils at the terminal site. This is in contrast to other sites that were either several miles up the river, or located on more stable soils.

For this reason, any emergency plan proposed for the O LNG facility should be based on the premise that a tsunami could be the initiating event, and that emergency response capabilities will be challenged by the tsunami itself.

Terminal Design

Resource reports 1 and 11 consistently commit to compliance with NFPA 59A and codes referenced therein, but with little information on the actual details of compliance. Resource report 11 references the 2001 edition of NFPA 59A, but the NFPA website states that the current edition is 2009. FERC should use the latest edition as its acceptance criteria. Even if detailed design information were available, the short deadline for this advisory report does not permit a detailed design review, sufficient to audit Oregon LNG's design against NFPA code requirements on a line-by-line basis. We expect FERC to perform this detailed design review, and reserve the right to comment on design issues as more time and more information become available.

Hazard Identification

The safety discussion in Resource Report 11 appears to rely heavily on the 2004 Sandia Report, and particularly on the Zones of Concern identified in that report and cited in NVIC 05-05. The references at the end of Resource Report 11 include the original 2004 Sandia Report, but there is no mention of the more recent "Sandia II", which addresses larger ships. FERC should base its hazards analysis on the more recent recommendations of Sandia II.

Resource report 1 of Oregon LNG's application state that the terminal will be designed to accommodate ships with capacity up to 250,000 m³. The zones of concern in the 2004 Sandia report were based on ships smaller than 150,000 m³. FERC's recommendation for this project should be conditioned on ships no larger than those assumed in any heat flux and vapor dispersion calculation.

The assumption of pure methane is probably not representative of actual cargo and may not be conservative. Oregon LNG has not committed to receiving its supply from any particular producing nation, and therefore we must assume that product would be received from nations where the LNG has a higher concentration of natural gas liquids such as propane. Some of these higher-weight hydrocarbons have higher potential for vapor dispersion than pure methane. We expect FERC to verify that conservative assumptions were used for all parameters, including the hydrocarbon content of the product, in NFPA 59A required calculations. The EIS for this project should explain how these assumptions were made and why they are the most conservative.

Quality Assurance

In our Safety Advisory Report for Bradwood Landing, dated June 2006 and for JCEP, dated October 2007, ODOE included extensive comments on the need for a rigorous Quality Assurance program that would be subject to regulatory review prior to start of construction. We note that the Bradwood DEIS and FEIS as well as the JCEP DEIS do not include a discussion of such a program, and we renew the recommendation and incorporate our comments from that June 2006 report into this one. The State expects the Commission to describe and impose a condition requiring Oregon LNG to adopt a rigorous and comprehensive quality assurance program applicable during both construction and operation of the import terminal.

Our review of 49 CFR 193 and NFPA 59A did not reveal any standards for an acceptable QA program. We would expect to see evidence that the QA function is independent of operations, scheduling or budgeting. We would expect to see steps to ensure that:

- i metal components are fabricated of metals with the specified metallurgical content and properties,
- ii concrete or other structural materials are tested to the strength specified,
- iii vendors of equipment and material are audited by qualified auditors,
- iv nondestructive tests are observed and approved by independent quality control personnel,
- v personnel performing safety related construction or operation activities are properly qualified, with documentation of that qualification available for audit,
- vi construction and operations are performed in accordance with approved procedures,
- vii only controlled copies of design documents are used in construction, with only the current revision used in the field,
- viii all changes in design documents are carried forward to other related and associated design documents,
- ix measurements are made with equipment that is calibrated and traceable,
- x conditions adverse to quality are subject to a corrective actions program that results in actions to prevent recurrence.

Safety Issues

The State of Oregon has reviewed the Safety Advisory Report on the proposed LNG terminal at the Port of Long Beach (POLB) issued by the California Energy Commission (CEC). That report relies largely on material taken from two readily available reports: (1) the Sandia Labs' November 2004 report "Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water" (Sandia Report) and (2) Richard Clark's "LNG Facilities in Urban Areas."

The safety significant events listed in Sandia and Clark and quoted in the CEC advisory report could apply to any terminal at any location and need not be repeated in this report. However, we agree with CEC that the 5 kw/m^2 is described in the Sandia Report as "the permissible level for emergency operations lasting several minutes with appropriate clothing" (Table 6, p.38). This is the lowest heat flux shown in the tables that describe the exclusion zone calculations in Resource report 11.. Because the people occupying the nearest residences or businesses (in Warrenton) are relatively far from the nearest fire station and do not have the appropriate clothing or emergency training, thermal radiation calculations should show the point at which worst case heat flux will permit safe evacuation, possibly requiring more than "several minutes" and without appropriate clothing or emergency training. We especially note that U.S. highway 101 can reach a virtual standstill during weekends, even in winter, so that evacuation may not be quick or even practical. Therefore, an exclusion distance should be chosen that ensures a low enough heat flux for those people who cannot move away quickly. The CEC advisory report at p. 15 suggests 1.5 kw/m^2 . Oregon LNG should calculate the distance to this heat flux for a design basis event at Oregon LNG and issue a figure showing the results.

Additional Comments on the Associated Pipeline

Resource Report 11 includes substantive information on pipeline safety as well as terminal safety. The pipeline associated with OLNNG goes through more populated lands than the Pacific Connector pipeline that was associated with JCEP. FERC should take into account the rapid population growth close to Warrenton and in western Washington County, particularly near Forest Grove. The same comment would apply to portions of Marion County near Woodburn. This would make it appropriate for FERC to require pipeline design and block valve spacing for a higher population category. Category 3 should be a minimum, and even category two design specifications would be appropriate in sections near these rapidly growing exurbs.

FERC should also note that in Oregon, the Public Utility Commission (OPUC) has inspection and enforcement authority for regulations of USDOT, under a delegation from USDOT. The OPUC has implemented pipeline safety regulations that include, and sometime exceed, the USDOT regulations at 49 CFR 192. For example, OPUC rules for cathodic protection exceed the federal regulations and require that such protection be operational immediately as start of operation, without the six month lag allowed by federal rules. There are other examples where PUC rules exceed those of USDOT. FERC should consult directly with the pipeline safety section of the OPUC for a full comparison. The State of Oregon expects that wherever there is a difference between USDOT and OPUC pipeline safety rules, the stricter of the two will apply.

Emergency Response Capabilities near the Facility Location

The State appreciates that the Commission has provided draft guidance for preparing the required Emergency Response Plan for an LNG import terminal. However, the State remains concerned that the guidance will be viewed by applicants as an upper limit on their responsibility for ensuring the safety of surrounding communities. The State views the guidance as just that: guidance, and urges the Commission to affirmatively state that the ERP must address all identified emergency situations, and that all costs attributable to insuring public safety must be borne by the applicant.

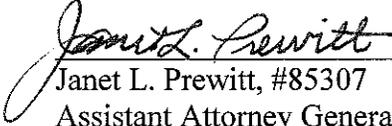
Furthermore, the State remains concerned that FERC's guidance fails to provide minimum resource and training standards for LNG emergency preparedness and response. The state is concerned about the effect of impasse during negotiations for the ERP. As a result, the state established minimum standards for any LNG developer desiring to build and operate an LNG import terminal in Oregon. The state urges the Commission to require Oregon LNG to establish a Memorandum of Understanding agreeing to comply with Oregon's minimum standards for emergency preparedness to prevent disagreements between the applicant and state and local governments on what is adequate LNG preparedness.

Finally, whatever criteria are used to generate the ERP, FERC should make the process as transparent to the public as possible, including the essential elements of an emergency plan. Although the details of the WSA and ERP are withheld from public disclosure, information regarding measures to protect the public during a design basis event should be a part of public outreach and should be available before the issuance of a FERC construction permit.

CERTIFICATE OF SERVICE AND MAILING

I hereby certify that I have this day served by electronic mail, and for those parties for which service is not specified at an electronic mail address, by U.S. mail, first class postage prepaid, the foregoing document on all parties listed on the official service list complied on this proceeding.

Date: November 10, 2008.



Janet L. Prewitt, #85307
Assistant Attorney General

APPENDIX C2

MOU BETWEEN OREGON LNG AND ODE

**AGREEMENT BETWEEN
THE OREGON DEPARTMENT OF ENERGY AND
OREGON LNG FOR EMERGENCY PLANNING AND PREPAREDNESS AT PROPOSED LNG
FACILITIES**

I. Purpose

This agreement establishes a framework of cooperation and sets responsibilities between Oregon LNG and the Oregon Department of Energy (ODOE) for the completion of Phase I and Phase II of the planning and preparedness for emergencies at proposed Liquefied Natural Gas (LNG) facilities in Oregon. This includes the associated terminals and events along the waterway transit routes as described in Section IV of this agreement.

II. Authorities and Responsibilities

Oregon LNG is responsible by federal law and regulations to cooperate with state and local governments to protect public health and safety in the event of an accident at their LNG facilities, terminals, or along the transit routes.

The Governor of Oregon is responsible for the emergency services system within the state of Oregon (ORS 401.035). In consultation with the Oregon Department of Energy and the Economic and Community Development Department, the Governor is directed to prepare an extensive statewide contingency plan for energy emergencies (ORS 176.809). The Governor of the State of Oregon has delegated to ODOE the responsibility to work with the United States Coast Guard and be the lead state agency that will work with FERC with respect to safety issues associated with LNG facilities in Oregon. Pursuant to ORS 469.030(1) (c), (e) and U), ODOE has authority to contract with private agencies for energy activities and services related to energy resources including the administration of federal and state energy programs.

III. Objectives

Oregon LNG and ODOE agree to cooperate to develop an emergency preparedness program for accidents at proposed facilities, which establishes and ensures uniform policies and procedures to (1) protect public health, safety and the environment and (2) ensure public awareness of and confidence in Oregon's and Oregon LNG's response to an accident.

IV. Phase 1 Tasks

ODOE agrees to develop a program for carrying out the responsibilities listed in Section II as they apply to Oregon LNG's proposed LNG facility.

Oregon LNG and ODOE agree that Phase 1 will focus on developing a preliminary draft state LNG Emergency Response Plan. Phase 1 tasks include:

Task 1 – Review existing site-specific emergency response plans, along with Coast Guard waterway documentation. Participate in the development of site-specific emergency response plans and comment on documents provided for review.

Task 2 – Review existing site-specific information necessary to assist in the development of local and state emergency response plans, focusing on existing and needed infrastructure, personnel and equipment requirements, and communication protocols.

Task 3 – Review published emergency response plans from already constructed and permitted LNG re-gasification terminals within the United States to provide key structure and content information. Site-specific information will be updated based on construction information in Phase 2 before operations commence.

Task 4 – Develop the preliminary draft State Emergency Response plan with initial required procedures identified. Procedures will be drafted in phase 2, before operations commence.

Task 5 – Develop the preliminary draft site-specific information and define overarching procedure needs.

Task 6 – Publish preliminary draft State Emergency Response plan for review and revision by state and local agencies.

V. Consideration

A. In consideration of ODOE's activities under this agreement, Oregon LNG will reimburse ODOE for expenditures incurred in performance of the tasks described in Section IV above.

B. ODOE will submit quarterly invoices to Oregon LNG. Oregon LNG agrees to reimburse ODOE for all expenses incurred, including salaries, benefits, direct expenses for services and supplies, travel and indirect (overhead).

C. For the period beginning on the effective date of this contract and ending June 30, 2015, Oregon LNG will pay ODOE an amount not to exceed \$25,000. The not-to-exceed amount can be revised by modification to this Agreement and must be signed by authorized representatives of both parties.

VI. Revisions

Oregon LNG and ODOE agree to review this agreement and update it as necessary. Amendments or modifications may be made to this agreement only upon the written agreement of both parties.

VII. Term of Agreement

This agreement shall become effective upon signatures by both parties, and shall remain in effect until June 30, 2015, unless sooner terminated or extended. This Agreement may be terminated by either party upon 30 days previous written notice to the other party.

The agreement is executed this 15th day of August, 2014.

VIII. Contract

ODOE Contact

Deanna Henry
Emergency Manger
Oregon Department of Energy
625 Marion St. NE
Salem, OR 97301

(503) 932-4428
deanna.henry@state.or.us

Oregon LNG Contact

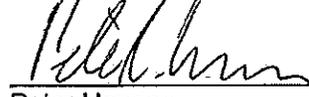
Peter Hansen
Chief Executive Officer
Oregon LNG
5 N HWY 101
Warrenton, OR 97146

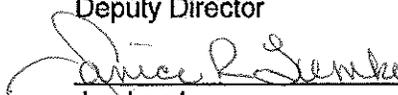
(503) 298-4967
peterh@oregonlng.com

OREGON DEPARTMENT OF ENERGY

Oregon LNG


Michael Kaplan 8.19.14
Deputy Director Date


Peter Hansen 8/15/2014
Chief Executive Officer Date


Jan Lemke 8/18/14
Designated Procurement Officer Date


Ken Niles, 8-18-14
Division Administrator Date