

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
United States Coast Guard
Sector Portland

6767 N. Basin Avenue
Portland, Oregon 97217-3992
Phone: (503) 240-9374
Fax: (503) 240-9369
e-mail: Russell.A.Berg@uscg.mil

16611/OREGON LNG
April 24, 2009

Mr. Peter Hansen
Oregon LNG
8100 NE Parkway Dr. Suite 165
Vancouver, WA 98662


Dear Mr. Hansen:

Enclosed you will find a copy of the Letter of Recommendation (LOR) issued pursuant to 33 C.F.R. § 127.009 in response to your Letter of Intent (LOI) dated May 23, 2007 proposing to transport Liquefied Natural Gas (LNG) by ship to a proposed receiving terminal at Warrenton, Oregon. It conveys the Coast Guard's determination on the suitability of the Columbia River for LNG marine traffic as it relates to safety and security. An LOR Analysis and Supplemental LOR Analysis accompany the LOR. Under NVIC 05-08, the LOR Analysis replaced the Waterway Suitability Report (WSR) detailed in the previous NVIC, 05-05. As a point of clarity, the LOR Analysis is the same as the WSR. In addition to meeting the requirements of 33 C.F.R. § 127.009, this letter also fulfills the Coast Guard's commitment for providing information to the Federal Energy Regulatory Commission (FERC) under the Interagency Agreement signed in February 2004.

Should you feel aggrieved by this decision, you may request reconsideration pursuant to 33 C.F.R. § 127.015(a). For your information, any request for reconsideration must be submitted to me in writing, within 30 days of receipt of this letter. You may also request reconsideration in person if the written request would have an adverse impact on your operation.

If you have any questions, my point of contact is Mr. Russ Berg. He can be reached the above address, phone number and e-mail.

Sincerely,


F. G. MYER
Captain, U. S. Coast Guard
Captain of the Port

Enclosures: (1) Letter of Recommendation
(2) Letter of Recommendation Analysis
(3) Supplemental Letter of Recommendation (SSI – not publicly releasable)

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
United States Coast Guard
Sector Portland

6767 N. Basin Avenue
Portland, Oregon 97217-3992
Phone: (503) 240-9374
Fax: (503) 240-9369
e-mail: Russell.A.Berg@uscg.mil

16611/OREGON LNG
April 24, 2009

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

LETTER OF RECOMMENDATION FOR OREGON LNG TERMINAL

Dear Ms. Bose:

This Letter of Recommendation (LOR) is issued pursuant to 33 C.F.R. § 127.009 in response to the Letter of Intent (LOI) submitted by Oregon LNG (Applicant) dated May 23, 2007 proposing to transport Liquefied Natural Gas (LNG) by ship to a proposed receiving terminal on the Skipanon Peninsula in Warrenton, Oregon. It conveys the Coast Guard's determination on the suitability of the Columbia River for LNG marine traffic as it relates to safety and security. In addition to meeting the requirements of 33 C.F.R. § 127.009, this letter also fulfills the Coast Guard's commitment for providing information to your agency under the Interagency Agreement signed in February 2004.

After reviewing the information in the Applicant's LOI and completing an evaluation of the waterway in consultation with a variety of local port stakeholders, I have determined that the applicable portions of the Columbia River and its approaches are not currently suitable, but could be made suitable for the type and frequency of LNG marine traffic associated with this project. My determination is based on a review of the information provided in accordance with 33 CFR 127.007(d)(3) through (d)(6) and in consideration of the items listed in 33 CFR 127.009(b) through (d)(6). The reasons leading to my determination are outlined below.

On April 24, 2009 I completed a review of the Applicant's Waterway Suitability Assessment (WSA) submitted in March 2008 by Halcrow, Inc. This review was conducted following the guidance provided in U.S. Coast Guard Navigation and Vessel Inspection Circular (NVIC) 05-08. The review focused on navigation safety and maritime security risks posed by LNG marine traffic associated with the proposed Oregon LNG project and the measures needed to responsibly manage these risks. During the review, the Coast Guard consulted with a variety of stakeholders including an *ad hoc* validation committee and the Area Maritime Security Committee. Following this review a LOR Analysis and Supplemental LOR Analysis (marked Sensitive Security Information (SSI)) were issued. These Analysis' identify the requirements, conditions and risk mitigation measures to ensure the safe movement of these vessels.

The Applicant's WSA includes risk management strategies and associated measures that were developed for the safe navigation and security at each maritime security level, and that if properly implemented, sufficiently mitigate the identified risks associated with LNG vessel traffic for the proposed facility. These risk mitigation measures and strategies have been documented in the enclosed LOR Analysis and Supplemental LOR Analysis (SSI). Based on my review and the full implementation by the Applicant of the measures outlined in their WSA, the LOR Analysis and Supplemental LOR Analysis, I have determined that the Columbia River

LETTER OF RECOMMENDATION FOR OREGON LNG TERMINAL

leading up to Oregon LNG could be suitable for the type and frequency of LNG marine traffic associated with this project.

While this letter has no enforcement status, the determinations, analysis, and ultimate recommendation as to the suitability of this waterway, as contained in this letter, would be referenced in concert with a Captain of the Port Order, should an LNG transit be attempted along this waterway without full implementation of the risk mitigation measures. Such an Order would be issued pursuant to my authority under the Ports and Waterways Safety Act of 1972, as amended by the Port and Tanker Safety Act of 1978, 33 U.S.C. § 1223, *et seq.*, among other authorities.

A copy of the LOR has been forwarded to the Applicant. Should the Applicant feel aggrieved by this decision, they may request reconsideration by me pursuant to 33 C.F.R. § 127.015(a). For your information, any request for reconsideration must be submitted in writing within 30 days of receipt of this letter. The Applicant may also request reconsideration in person if the written request would have an adverse impact on their operation.

If you have any questions, my point of contact is Mr. Russ Berg. He can be reached at the above address, phone number and e-mail.

Sincerely,



F. G. MYER
Captain, U. S. Coast Guard
Captain of the Port

Enclosures: (1) LOR Analysis
(2) Supplemental LOR Analysis (SSI – not publicly releasable)

Copy: Oregon LNG
Commandant, U. S. Coast Guard (CG-522, CG-541, CG-544)
Commander, Thirteenth Coast Guard District (dl, dp)
Commander, Coast Guard Pacific Area (Pp)
Coast Guard Maintenance and Logistics Command Pacific (sm)
Oregon Department of Energy
Oregon Department of Fish and Wildlife w/o SSI enclosure
Clatsop County Sheriff w/o SSI enclosure
Astoria Fire Department
Astoria Police Department
Warrenton Fire Department
Warrenton Police Department

U.S. Department of
Homeland Security

United States
Coast Guard



Commanding Officer
United States Coast Guard
Sector Portland

6767 N. Basin Avenue
Portland, OR 97217
Phone: (503) 240-9374
Fax: (503) 240-9369

16611/Oregon LNG
April 24, 2009

Ms. Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

LETTER OF RECOMMENDATION (LOR) ANALYSIS FOR OREGON LNG

Dear Ms. Bose:

On April 24, 2009, the Coast Guard completed a review of the Waterway Suitability Assessment (WSA) for the proposed Oregon LNG receiving terminal submitted by Halcrow, Inc. on behalf of Oregon LNG in March of 2008. This review was conducted following the guidance provided in Navigation and Vessel Inspection Circular (NVIC) 05-08 of Dec 22, 2008. The review focused on the navigation safety and maritime security risks posed by LNG marine traffic, and the measures needed to responsibly manage these risks. During the review, the Coast Guard consulted a variety of stakeholders including state and local emergency responders, Marine Pilots, towing industry representatives, members of the Harbor Safety Committee, and the Area Maritime Security Committee.

Based upon this review, I have determined that the Columbia River and its approaches are not currently suitable, but could be made suitable for the type and frequency of LNG marine traffic associated with this project. Additional measures are necessary to responsibly manage the maritime safety and security risks. The proposed risk mitigation measures are found in section 5 and section 7 of the submitted WSA. This LOR analysis clarifies as necessary, and in some cases expands the recommendations needed to responsibly manage the navigation, safety and security risks. The specific measures, and the resources needed to implement them where applicable, are described below and in a separate supplementary analysis which is being provided to you under the terms and conditions established for handling Sensitive Security Information. The supplemental analysis also includes a copy of the Oregon LNG WSA.

The following is a list of specific risk mitigation measures that are recommended to responsibly manage the safety and security risks of this project. Details of each measure, including adequate support infrastructure, will need further development through the creation of an Emergency Response Plan as well as a Transit Management Plan that clearly spell out the roles, responsibilities, and specific procedures for the LNG vessel and all agencies responsible for security and safety during the operation.

Navigational Measures:

- **Safety/Security Zone:** A moving safety/security zone will be established around the LNG vessel extending 500-yards around the vessel but ending at the shoreline. No vessel may enter the safety/security zone without first obtaining permission from the Coast Guard Captain of the Port (COTP). The expectation is that the COTP's Representative will work with the Pilots and patrol assets to control traffic, and will allow vessels to transit the Safety/Security zone based on a case-by-case assessment conducted on scene. Escort resources will be used to contact and control vessel movements such that the LNG Carrier is protected.

LETTER OF RECOMMENDATION ANALYSIS FOR OREGON LNG

16611/OREGON LNG
April 24, 2009

While the vessel is moored at the facility there will be a 200 yard-security zone around the vessel. In addition, there will be a 50 yard security zone around the LNG Terminal when there is not a vessel at the dock.

Resource Gap: Resources required to enforce the safety/security zone are discussed under Security Measures in the supplemental analysis.

- Vessel Traffic Management Due to a narrow shipping channel and navigational hazards, it is recommended that LNG vessels meet the following additional traffic management measures:
 - A Transit Management Plan be developed in coordination with River Pilots, Bar Pilots, Escort Tug Operators, Security Assets and the Coast Guard prior to the first transit.
 - Due to the sudden weather changes on the Oregon coast and the relatively exposed location of the proposed terminal, a weather matrix must be a part of the recommended Transit Management Plan. This matrix would be prepared by the Applicant and would consider the entire duration of the planned port call by the LNG vessel. Where sustained winds are forecast to exceed 25 knots at any time during the port call, the LNG vessel would be required to remain at least 50 nautical miles from the coast. Additional considerations would include the weather conditions that require calling a Pilot to attend an LNG vessel that is at the terminal, when a Pilot must remain on board during the transfer of LNG to the facility, and the weather considerations that would call for a suspension of the transfer operation and the subsequent departure from port of the LNG vessel. Once prepared, this matrix would be submitted to the Coast Guard for review and inclusion in the overall Transit Management Plan. Additional simulation studies may be required to validate the proposed weather matrix.
 - The Transit Management Plan will be reviewed within six months of the first arrival, and followed by an annual review to ensure that it reflects the most current conditions and procedures.
 - For at least the first six months, that there be at least two Pilots aboard the LNG vessel throughout the transit.
 - For at least the first six months, that all transits be completed during daylight hours only, unless approved in advance by the COTP. After the first six months, it is anticipated that night transits may be recommended at certain times of the year to minimize disruptions to the waterway from the CR buoy to buoy 12. These times include the busiest fishing seasons from June through September.
 - The LNG Vessel board Pilots at least 5 miles seaward of the CR Buoy.
 - Overtaking by or of the LNG Vessel is prohibited without COTP approval.
 - Meeting situations of commercial vessels will be closely controlled. All meetings to be pre-arranged via Channel 13 VHF Bridge-to-Bridge and would be limited to the following areas:
 - Commercial piloted vessels avoid meeting in all turns (excluding fishing vessels under 200 feet).
 - Weather and bar conditions permitting, vessels may arrange for meetings to occur between the CR buoy and buoy 12, and between buoy 25 and buoy 27.
 - 24 hours prior to arrival, the Coast Guard, FBI, Bar Pilots and River Pilots, Escort Tug Masters, and other Escort assets would meet to coordinate inbound and outbound transit details. Subsequent coordination meetings or phone call confirmation would be required 4 hours prior to arrival and 1 hour prior to arrival.
 - Vessel transits and bar crossings would be coordinated so as to minimize conflicts with other deep draft vessels, recreational boaters, seasonal fisheries, and other Marine Events.

LETTER OF RECOMMENDATION ANALYSIS FOR OREGON LNG

16611/OREGON LNG
April 24, 2009

Resource Gaps: The recommended Vessel Transit Management Plan would be approved by the COTP at least 60 days prior to the first arrival.

- Vessel Traffic Information System: The current Vessel Traffic Information System on the Columbia River is limited to AIS receivers and a handful of cameras. In order to ensure vessel safety and security, this capability would need to be augmented with a robust camera system capable of monitoring the entire transit route. Due to weather concerns, these cameras would be equipped with detectors capable of monitoring vessel traffic in wind, rain and fog conditions common on the river.

Resource Gaps: Camera system with complete coverage of the entire transit route, capable of detecting vessel traffic in wind, rain, fog, and dark conditions. Access to the feed of this system should be granted to local, regional, state, and federal emergency responders.

- Tug Escort and Docking Assist : Due to the confined channel and high wind conditions, each LNG Carrier would be escorted by two tractor tugs, which would join the vessel as soon as safe to do so. Both tugs would be tethered at the direction of the Pilot. A third and fourth tractor tug would be required to assist with turning and mooring.
 - All four tugs will be at least 75 Ton Astern Bollard Pull or larger and equipped with Class 1 Fire Fighting equipment.
 - Based on the Maneuvering Simulation Study of January 3, 2008, LNG vessels would be limited to transiting during periods of 25 knots of wind or less. Additionally, extreme wind and weather conditions may require a third escort tug for any LNG vessel.
 - While unloading, all four tugs would remain on station to assist with emergency departure procedures. Two of the standby tugs would remain at the ready in the terminal basin, monitoring passing vessel traffic and immediately available to assist if maneuverability casualties of a passing vessel occurs. Whenever these tugs are utilized to assist a passing vessel, the Coast Guard would be notified as soon as it is safe to do so.
 - Tug escorts would be made in accordance with recognized industry standards, practices, or port guidelines that are developed specifically for "Tug Escorts."
 - "Best Achievable Protection" must be incorporated into tug and facility best practices. "Best Achievable Protection" means the highest level of protection which can be achieved through both the use of the best achievable technology and those manpower levels, training, procedures, and operational methods which provide the greatest degree of protection achievable.

Resource Gaps: Four 75 Bollard Ton Tractor Tugs with Class 1 Fire Fighting capability. Tug escort standards and practices would be developed and implemented for LNG Carriers operating on the Columbia River in concert with the Coast Guard Sector Portland Harbor Safety Committee. "Best Achievable Protection" will require review and concurrence of the Harbor Safety Committee.

- Navigational Aids: Any additional aids to navigation would be privately funded and maintained by the Applicant, and the location and permitting would be accomplished in accordance with current Coast Guard and Corps of Engineers procedures:

LETTER OF RECOMMENDATION ANALYSIS FOR OREGON LNG

16611/OREGON LNG
April 24, 2009

- PORTS (Physical Oceanographic Real-Time System) station at the terminal site contracted with NOAA to provide real time river level, current and WX data
 - A telemetric wind speed meter sited at the proposed terminal. In addition to providing the terminal and Operation Centers with current wind speeds, this meter would transmit data to the National Weather Service in accordance with NWS procedures.
 - Doppler docking station.
 - The available data for river current speeds at the terminal location is limited and unreliable. The installation of a turning basin by dredging the river bottom will impact the current data. As soon as practical after the dredging is complete and preferably before the final orientation of the pier face is completed, a river current study is recommended in the vicinity of the pier.
 - A quick-release mooring system is recommended to allow for vessel departures on short notice without the aid of additional personnel ashore.
 - Facility light shielding is recommended to preventing interfering with other Columbia River vessel traffic.
- LNG Carrier familiarization training for Pilots and Tug Operators: Prior to the arrival of the first vessel, joint simulator training is recommended for Pilots and Tug Operators identified as having responsibility for LNG traffic.
 - Dynamic Under Keel Clearance System: Installation of a real time system for data collection on under keel clearance is strongly recommended and will increase the ability to safely navigate the Columbia River Bar in varying conditions. The lack of accurate data, will limit the conditions under which a vessel may safely transit the bar. An immersion study of deep draft LNG vessels transiting the bar during summer and winter conditions is recommended within the first 12 months.

Resource Gap: Actual data on LNG tanker immersion.

Safety Measures:

- Vessel and Facility Inspections: LNG tankers and facilities are subject to (at a minimum) annual Coast Guard inspections to ensure compliance with federal and international safety, security and pollution regulations. In addition, LNG vessels and facilities are typically required to undergo a transfer monitor.

Resource Gap: Additional Coast Guard Facility and Vessel Inspectors.

- Shore-Side Fire-Fighting: Firefighting capability is extremely limited along the entire transit route. Shore side firefighting resources and training would need to be augmented in order to provide basic protection services to the facility as well as the communities along the transit route.

Resource Gap: To be determined in conjunction with local, regional, and state response agencies through the Emergency Response Planning process. Prior to the approval of the Emergency Response Plan (ERP), adequate cost sharing arrangements for project related training, equipment, maintenance, and staffing will need to be addressed for all of the communities impacted by the project.

LETTER OF RECOMMENDATION ANALYSIS FOR OREGON LNG

16611/OREGON LNG
April 24, 2009

- **In-Transit Fire-Fighting:** It is recommended that all crew members assigned to the escort and assist tugs be trained in the use and limitations of the installed Class I firefighting systems. Significant resource and jurisdictional issues exist in any marine fire incident on an underway vessel in the Columbia River. Current planning and preparedness efforts focus on a shore based response to a vessel moored at a facility.

Resource Gap: Development of a concrete plan for managing underway firefighting, including provisions for command and control of tactical fire fighting decisions as well as financial arrangements for provision of required training, mutual aid and identification of suitable locations for conducting fire fighting operations is critical to ensuring the safety of the port and securing the waterway.

- **Public Notification System and Procedures:** Adequate means to notify the public along the transit route, including ongoing public education campaigns, emergency notification systems (such as reverse 911 and siren systems), and adequate drills and training are recommended. Education programs must be tailored to meet the various needs of all river users, including commercial and recreational boaters, local businesses, local residents, and tourists.

Resource Gap: Current public notification capabilities vary greatly, and as part of the ERP process, a comprehensive notification system, including the deployment of associated equipment and training, will need to be developed in conjunction with local, regional, and state emergency responders.

- **Gas Detection Capability:** With the exception of the HAZMAT team in Astoria, gas detection capability is not resident and may not be available to initial responders along the transit route and at the facility. Emergency response personnel (both Police and Fire) require appropriate gas detection equipment, maintenance, and training.

Resource Gap: Gas Detectors, appropriate training, and maintenance infrastructure to be developed as part of the ERP process in conjunction with local, regional, and state emergency responders.

- **Communication Systems and Protocols:** Inter-agency communications pose a significant obstacle to joint operations. Deployment of a Regional Communication Plan and associated equipment is recommended to ensure that the facility, associated command centers, emergency responders, Coast Guard, Tug Operators, Escort Vessels, and Pilots can communicate in an effective manner. The system should provide for monitoring and communicating on both secure and unsecure (e.g. Ch. 16, 13, 22), as well as sending and receiving both speech and data.

Resource Gap: Operation specific and contingency communications plans and appropriate (intrinsically safe) equipment to coordinate both routine escorts and emergency operations. Equipment to transmit and receive both voice and data in a secure and unsecure environment. These gaps will be addressed as part of the ERP process in conjunction with local, regional, and state emergency responders.

Security Measures:

- **Security Boardings, Waterway Monitoring, Shoreline Patrols, and Vessel Escorts:** Extensive security measures will be recommended to provide adequate protection for LNG vessel while

LETTER OF RECOMMENDATION ANALYSIS FOR OREGON LNG

16611/OREGON LNG
April 24, 2009

transiting the Columbia River and moored at the facility. The details of these measures are Sensitive Security Information, and are outlined in a separate supplementary analysis.

- Facility Security Measures: LNG facilities are subject to the security regulations outlined in 33 CFR 105, and are required to submit a Facility Security Plan (FSP) for Coast Guard approval, and undergo (at a minimum) an annual Coast Guard security inspection. The facility should also develop a plan to provide for appropriate security measures from the start of construction through implementation of the Coast Guard approved FSP.

In the absence of the risk mitigation measures proposed by the Applicant as modified and clarified by the measures described in this analysis and the resources necessary to implement them, or in the absence of any changes to existing Coast Guard policy or guidance to lessen safety and security requirements, the Columbia River would be considered unsuitable for the LNG marine traffic associated with the Oregon LNG terminal. Due to the dynamic nature of the Columbia River, the applicant should be required to submit an annual update to the Waterway Suitability Assessment to the Coast Guard which will be revalidated by the COTP and AMSC. For further information, please contact Mr. Russ Berg of Coast Guard Sector Portland at (503) 240-9374.

Sincerely,



F. G. MYER
Captain, U.S. Coast Guard
Captain of the Port
Federal Maritime Security Coordinator

Copy: Oregon LNG
Thirteenth Coast Guard District (dp)
Coast Guard Pacific Area (Pp)
Commandant, Coast Guard Headquarter (CG-5222) (CG-741) (CG-544)
Commander, MLCAPAC (sm) (le)