APPENDIX H

U.S. Coast Guard Letter of Intent and Waterway Suitability Report Letter for the Bradwood Landing Project

Unofficial FERC-Generated PDF of 20050311-0053 Issued by FERC OSEC 03/10/2005 in Docket#: PF05-10-000

NORTHERN STAR NATURAL GAS LLC

Captain Paul D. Jewell, Commanding Officer
US Coast Guard Marine Safety Office Portland
6767 North Basin Avenue
Portland, OR 97217

January 18, 2005

Dear Captain Jewell,

As required under US Title 33 Code of Federal Regulations § 127.007 (a), Northern Star Natural Gas LLC ("NSNG") herein submits a Letter of Intent to build a new Waterfront Facility Handling Liquefied Natural Gas Facility within the Portland, Oregon US Coast Guard Captain of the Port Zone. NSNG recognizes that submission of this Letter of Intent significantly predates the planned construction and start-up milestones discussed below and I feel that this early involvement of your office merits brief discussion.

The Federal Energy Regulatory Commission ("FERC") has issued Guidance[1] which provides a mechanism for National Environmental Policy Act ("NEPA") pre-filing activities. This Guidance, which provides an option for NEPA pre-filing on interstate natural gas projects, *"...encourage(s) ... industry to engage in early project-development involvement with the public and agencies."* NSNG will soon initiate the Pre-Filing Process encouraged under FERC Guidance and, in the spirit of that Guidance, is submitting for your consideration this Letter of Intent well ahead of the minimum timelines set forth in Subpart A of Part 127 of Title 33 CFR. In keeping with the intent of the Guidance, it is hoped that this approach serves in support of the:

1) initiation of an early review of the environmental documentation required under NEPA; and,

2) start of a stakeholder outreach program so as to promote and facilitate the early identification and resolution of issues.

It is our hope that the NEPA Pre-Filing will support the Project's receiving an expeditious review and approval, allowing for the meeting of the proposed construction schedule and targeted in-service date. We are mindful of the critical role that the Captain of the Port holds in the development of a project of this nature and look forward to working closely together with your staff as the Project matures.

Overview

NSNG proposes to construct a Liquid Natural Gas (LNG) Receiving Terminal ("Terminal") to be located in Bradwood, Oregon. The Terminal will be located on roughly 55 acres within an approximate 450 acre parcel of land, controlled by NSNG, which lies on the southern shore of the Columbia River approximately 38 miles from the

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[1] Guidance: FERC Staff NEPA Pre-Filing Process For Natural Gas Projects, February 10, 2004;, *Federal Energy Regulatory Commission - (see http://www.ferc.gov/industries/gas/enviro/gas_prefiling.pdf)*

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Pacific shoreline. The Terminal is planned to be built in a phased construction schedule, with 1.0 billion standard cubic feet per day (BCFD) sendout capacity in the first phase, and a provision for expansion to satisfy follow-on attendant market demand thereafter. The Terminal shall consist of the following major components:

- *Marine terminal and LNG transfer lines* – Proposed infrastructure shall include a single berth to receive LNG Tank Vessels ranging from 100,000 cubic meters ("m^3") up to 250,000 m^3 (~629,000 bbls to ~1,570,000 bbls) in capacity with an unloading rate of 12,000 m^3/hr (~75,700 bbls/hr). The LNG will be transferred from the Tank Vessels through three 16-inch diameter liquid unloading arms at the berth and transferred to storage tanks through dual 30-inch diameter liquid unloading lines. It is envisioned that some moderate dredging will be required to access the berth and dredge the turning basin.

- *Two LNG storage tanks* – The Proposal provides for the initial construction of two full-containment LNG storage tanks, each having a net capacity of 165,000 m^3 (~1,038,000 bbls). Permitting for a third LNG storage tank will be sought with the initial application, with plans for its actual construction in the future.

- *LNG vaporization and send out system* – Proposed process equipment shall include a vaporization system. This vaporization system that may be either Shell and Tube Vaporizers equipped with water/glycol heaters or, alternately, Submerged Combustion Vaporizers fitted with In-Tank Low Pressure LNG pumps that feed High Pressure LNG booster pumps.

- *Vapor Handling System* – Proposed vapor handling equipment includes two 50% capacity cryogenic blowers to remove a portion of the vapor generated in the storage tanks during ship unloading, and two 50% capacity oil-free reciprocating compressors to discharge the balance of the vapors generated in the tank.

- *Utilities and infrastructure* – Proposed facilities infrastructure shall include, but not be limited to, roads, fences, dikes, buildings, pipe racks, utilities, power distribution system, and a fire protection system.

- *Natural Gas Sendout Pipeline* – A new 36-inch-diameter natural gas pipeline of approximately 35 miles in length will be constructed to interconnect to the Williams Northwest Pipeline system.

In addition, it is of note that associated non-jurisdictional facilities may include upgrades to short sections of public road or extensions of utilities to the site.

Title 33, Part 127, Subpart A Particulars

In addition to the physical location and description of the proposed facility discussed above, the following additional information required by 33 CFR § 127.007 (d)(1) – (d)(6) is provided.

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I. General Information

The Owner and Operator of the NSNG LNG Facility is:

Mr. William "Si" Garrett
President
Northern Star Natural Gas LLC
5501 Tilbury Drive
Houston, TX 77056-2017

Mr. Garrett may be contacted at phone number 713-817-2416

The telephone number and proper physical address of the NSNG Facility will be provided at a later date and as soon as this information becomes available.

II. Liquefied Natural Gas Carrier Information

It is envisioned that NSNG will receive approximately 125 LNG Tank Vessels per year. A listing of potential LNG Tank Vessels, selected characteristics, and general trading routes is provided in Enclosure 1 to this Letter.

III. Environmental Information

This section focuses on environmentally sensitive areas from Mile 38 seaward to Mile 18. In particular, these areas include:

- *Clatsop County Net Pen Fisheries Project located at two sites, the first in Cathlamet Bay in the approximate area of Mile 19 – Mile 18, and the second in the approximate area of Mile 27 near Blind Slough. Both sites are associated with the release of Coho smolts;*
- *Lewis & Clark National Wildlife Refuge (NWR), which includes twenty-three named and charted islands adjacent to Cathlamet Bay, Calendar Slough, Brownsmead Flats, Blind Slough, and Clifton Channel, in the area of Mile 38 – Mile 20;*
- *Big Creek Fish Hatchery, in the approximate area of Mile 26, associated with the release Coho smolts;*
- *Gnat Creek Hatchery, in the approximate area of Mile 27, associated with the release of Spring Chinook and Winter Steelhead smolts;*
- *Corps Channel Improvement Project includes mitigation for dredging, Lois Island Embayment (Mile 20-Mile 18), Miller - Pillar Islands (Mile 26- Mile 25) and Tenasillahe Island (Mile 37- Mile 36) and are designated areas for restoration projects; and,*
- *The Nicholai – Wickiup Watershed, as depicted in Figure 1, which has three business entities with National Pollution Discharge Elimination System Permits (NPDES) and eight with Water Pollution Control Facility Permits (WPCF). These activities are mentioned herein because their activities have impacts to water quality and temperature affecting salmonids in the area of Mile 38 – Mile 20.*

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FOR THE PROPOSED BRADWOOD LANDING PROJECT
Docket Numbers CP06-365-000, CP06-366-000

Figure 1 Nicolai-Wickiup Watershed

Public access for the above information is available only through the Public Reference Room, or by e-mail at public.referenceroom@ferc.gov.

IV. Residential Information

This section discusses residential areas from Mile 38 seaward to Mile 18. The area immediately surrounding the proposed site is shown in the aerial photograph presented in Figure 2. In particular, the residential areas in consideration include:

- *a very small pocket of residential zoned land at the end of the Bradwood Clifton road, at the approximate area of Mile 37 – Mile 36;*
- *a small number (approximately ten) of residential addresses in the area of Ostervold Road on Puget Island, at the approximate area of Mile 37 – Mile 36; and,*
- *Burnside, primarily a pocket of residential zoned land high on a bluff, at the approximate area of Mile 23 – Mile 22.*

With respect to Clatsop County on the "Oregon Side", given the range of zoning that applies to cities, unincorporated rural communities, rural communities, residential zoned land, and residential uses that occur on resource land, e.g. farm and forest lands, these two areas were regarded as "residential" within the areas seaward of Mile 30.

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Figure 2 Aerial Photograph of Immediate Area (top is North)

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In Pacific and Wahkiakum Counties on the "Washington side", the zoning regulations are very different from those of Oregon. Development along the north side of the Columbia River is closely stewarded by the Washington State Department of Ecology. In our area of concern of Mile 38 to Mile 20, orthophotography shows little development on the Columbia River's north side with the exception of:

- *Skamokawa, WA, which is not incorporated, but has two commercial uses and a small number of residential uses in the approximate area of Mile 34; and ,*
- *A number of aged or former residential areas, characterized in some cases as "ghost towns", reflecting old fishing villages, lumber/mill-towns, and the like. These locations are depicted as Red Dots on Enclosure 2.*

Security Issues

NSNG is particularly sensitive to the scope and nature of the security issues which must be considered by your office in the development of the Letter of Recommendation. We further recognize that efforts are currently underway by staff elements on behalf of Admiral Gilmore at US Coast Guard Headquarters (G-M) in the development of a common, cohesive approach regarding submission and review of security assessments

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and risk analyses surrounding infrastructure and operations of "127 Facilities" such as herein proposed. NSNG has been in discussion with Chief, G-MSO-2 about the ongoing efforts in this regard and the predicted timing of submission of security-related materials as effects the processing of the Letter of Recommendation. We have reviewed Navigation, Vessel and Inspection Circular ("NVIC") 9-02, Change 1, in particular Enclosure 3[2], and suggest initiating staff discussions centered on incorporation of the general approach of the NVIC in conducting an Area/Port Security Assessment as relates to the construction and operation of the proposed facility.

Additionally, we recognize our obligation to provide a Facility Security Plan as required by Title 33 CFR §105 and look forward to working with your staff in the development and review of the Security Plan. It is envisioned that development of the Plan under §105, in conjunction with NVIC 11-02[3], Change 1, and NVIC 03-03[4] will occur later in the planning and design process as the project matures.

I look forward to answering any questions that may arise out of your Staff's review of this Letter of Intent and its supporting documentation and am eager to provide amplifying information that may be required to support your Staff's efforts in the development of the Letter of Recommendation under 33 CFR § 127.009. In this regard, I urge you or your Staff to please feel free to contact me as required.

The proposed project promises to deliver to not only the region, but the nation, much needed energy resources. I feel strongly that project maturity is in the national and public interest and that approach to the project merits consideration under Executive Order 13212. I look forward to working with you in the development of this exciting project.

Sincerely,

William "Si" Garrett, President
NORTHERN STAR NATURAL GAS LLC

CC w/encl: Federal Energy Regulatory Commission, Washington, DC
Commandant, US Coast Guard, (G-MSO-2), Washington, DC

Enclosure 1: Potential LNG Tank Vessels, Selected Characteristics, and General Trading Routes
Enclosure 2: Annotated Northwest Power and Conservation Chart with Supplemental Information

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[2] CH-1 TO NVIC 09-02, *Guidelines For Development Of Area Maritime Security Committees And Area Maritime Security Plans Required For U.S. Ports*
[3] CH-1 TO NVIC 11-02, *Recommended Security Guidelines For Facilities*
[4] CH-1 TO NVIC 03-03, *Implementation Guidance For The Regulations Mandated By The Maritime Transportation Security Act Of 2002 (MTSA) For Facilities*

Enclosure 1

List of Potential Trading LNG Tank Vessel for Northern Star Natural Gas Proposed Bradwood Facility

Vessel Name	Year Built	Owner	Operator	Capacity	Shipyard	Trade Route
Al Bida	1999	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	Mitsui O.S.K. Lines	138,000	Kawasaki Heavy Industries	Qatar/Japan
Al Jasra	2000	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	NYK	138,000	Mitsubishi Heavy Industries	Qatar/Japan
Al Khor	1997	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	NYK	138,000	Mitsubishi Heavy Industries	Qatar/Japan
Al Rayyan	1997	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	K Line Corp.	138,000	Kawasaki Heavy Industries	Qatar/Japan
Al Wajbah	1997	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	Mitsui O.S.K. Lines	138,000	Mitsubishi Heavy Industries	Qatar/Japan
Al Wakrah	1998	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	Mitsui O.S.K. Lines	138,000		Qatar/Japan
Al Zubarah	1996	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	Mitsui O.S.K. Lines	138,000	Mitsui Engineering and Shipbuilding	Qatar/Japan
Broog	1998	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	NYK	138,000	Mitsui Engineering and Shipbuilding	Qatar/Japan
Doha	1999	NYK, Mitsui O.S.K. Line Ltd., K Line Corp., and Iino KK Ltd.	NYK	138,000	Mitsubishi Heavy Industries	Qatar/Japan
Hanjin Sur	2000	Hanjin Shipping	Hanjin Shipping	138,000	Hanjin Heavy Industries	Oman/Korea
Hyundai Oceanpia	2000	Hyundai Merchant Marine	Hyundai Merchant Marine	138,000	Hyundai Heavy Industries	Indonesia/Korea
K. Acacia	2000	Horizon Maritime Shipholding SA	Korea Line Corp.	138,000	Daewoo Heavy Industries	Oman/Korea
K. Freesia	2000	Horizon Maritime Shipholding SA	Korea Line Corp.	138,000	Daewoo Heavy Industries	Qatar/Korea
SK Splendor	2000	SK Shipping Co. Ltd.	SK Shipping Co. Ltd.	138,000	Samsung Heavy Industries	Oman/Korea
SK Stella	2000	SK Shipping Co. Ltd.	SK Shipping Co. Ltd.	138,000	Samsung Heavy Industries	
SK Summit	1999	Omnia Enterprises SA	SK Shipping Co. Ltd.	138,000	Daewoo Heavy Industries	Qatar/Korea
SK Supreme	2000	SK Shipping Co. Ltd.	SK Shipping Co. Ltd.	138,000	Samsung Heavy Industries	Qatar/Korea
Zekreet	1998	NYK, Mitsui O.S.K. Lines Ltd., K Line Corp., and Iino KK Ltd.	K Line	138,000	Mitsui Engineering and Shipbuilding	Qatar/Japan
Ekaputra	1990	Cometco Shipping Inc.	HUMOLCO	137,000	Mitsubishi Heavy Industries	Indonesia/Taiwan
Golar Mazo	2000	Faraway Maritime	Gotaas Larsen (Osprey)	137,000	Mitsubishi Heavy Industries	Indonesia/Taiwan
Ish	1995	Abu Dhabi National Oil Co.	BP Shipping	137,000	Mitsubishi Heavy Industries	Abu Dhabi/Japan
Mra Weh	1996	Abu Dhabi National Oil Co.	Gotaas Larsen	137,000	Kvaerner Masa Yards	Abu Dhabi/Japan
Mubaraz	1995	Abu Dhabi National Oil Co.	Gotaas Larsen	137,000	Mitsubishi Heavy Industries	Abu Dhabi/Japan
Shah Amah	1994	Abu Dhabi National Oil Co.	BP Shipping	137,000	Kawasaki Heavy Industries	Abu Dhabi/Japan
Umm Alashtan	1997	Abu Dhabi National Oil Co.	Gotaas Larsen	137,000	Kvaerner Masa Yards	Abu Dhabi/Japan
Al Hamra	1996	Abu Dhabi National Oil Co.	Gotaas Larsen	135,000	Kvaerner Masa Yards	Abu Dhabi/Japan
Al Khaznah	1994	Abu Dhabi National Oil Co.	BP Shipping	135,000	Mitsui Engineering and Shipbuilding	Abu Dhabi/Japan
Ghasha	1995	Abu Dhabi National Oil Co.	BP Shipping	135,000	Mitsui Engineering and Shipbuilding	Abu Dhabi/Japan
Hanjin Muscat	2000	Hanjin Shipping	Hanjin Shipping	135,000		Oman/Korea
Hanjin Ras Laffan	2000	Hanjin Shipping	Hanjin Shipping	135,000		Qatar/Korea
Hyundai Aquapia	2000	Hyundai Merchant Marine	Hyundai Merchant Marine	135,000	Hyundai Heavy Industries	Oman/Korea
Hyundai Cosmopia	2000	Hyundai Merchant Marine	Hyundai Merchant Marine	135,000	Hyundai Heavy Industries	Qatar/Korea
Hyundai Technopia	1999	Hyundai Merchant Marine	Hyundai Merchant Marine	135,000	Hyundai Heavy Industries	Qatar/Korea
LNG Jamal	2000	Osaka Gas, NYK, Mitsui O.S.K. Lines, K Line	NYK	135,000		Oman/Japan
LNG Bonny	1981	Bonny Gas Transport	Shell International Trading & Shipping	132,500	Kockums Shipyards	Nigeria/Europe
LNG Finima	1984	Bonny Gas Transport	Shell International Trading & Shipping	132,500	Kockums Shipyards	Nigeria/Europe
Edouard L.D.	1977	Dreyfus/Gaz de France	L. Dreyfus	130,000	Constructions Navales et Industrielles de la Mediterranee	Algeria/France

Methania	1978	Methania	CMB (Exmar NV)	130,000	Boelwerf-Temse	Algeria/Belgium
Puteri Delima	1994	Petronas Marine	Petronas Marine	130,000	Chantiers de l'Atlantique	Malaysia/Japan
Puteri Firus	1997	Petronas Marine	Petronas Marine	130,000	Chantiers de l'Atlantique	Malaysia/Japan
Puteri Intan	1994	Petronas Marine	Petronas Marine	130,000	Chantiers de l'Atlantique	Malaysia/Japan
Puteri Nilam	1995	Petronas Marine	Petronas Marine	130,000	Chantiers de l'Atlantique	Malaysia/Japan
Puteri Zamrud	1996	Petronas Marine	Petronas Marine	130,000	Chantiers de l'Atlantique	Malaysia/Japan
Tenaga Dua	1981	Malaysian International Shipping Corp.	Malaysian International Shipping	130,000	Constructions Navales et Industrielles de la Mediterranee	Malaysia/Japan
Tenaga Empat	1981	Malaysian International Shipping Corp.	Malaysian International Shipping	130,000		Malaysia/Japan
Tenaga Lima	1981	Malaysian International Shipping Corp.	Malaysian International Shipping	130,000	Constructions Navales et Industrielles de la Mediterranee	Malaysia/Japan
Tenaga Satu	1979	Malaysian International Shipping Corp.	Malaysian International Shipping	130,000	Constructions Navales et Industrielles de la Mediterranee	Malaysia/Japan
Tenaga Tiga	1981	Malaysian International Shipping Corp.	Malaysian International Shipping	130,000	Constructions Navales et Industrielles de la Mediterranee	Malaysia/Japan
Larbi Ben M'Hidi	1977	SNTM-HYPROC	SNTM-HYPROC	129,500	Constructions Navales et Industrielles de la Mediterranee	Algeria/USA-Turkey
Dwiputra	1994	Mitsui O.S.K. Lines, NYK, NIC, Humpus	HUMOLCO	127,000	Mitsubishi Heavy Industries	Indonesia/Japan
LNG Vesta	1994	Gas Co., Mitsui O.S.K. Lines, NYK, Iino	Mitsui O.S.K. Lines	127,000	Mitsubishi Heavy Industries	Indonesia/Japan
Northwest Sanderling	1989	North West Shelf Venture	ALSOC	127,000	Mitsubishi Heavy Industries	Australia/Japan
Northwest Seaeagle	1991	North West Shelf Venture	Shell International Trading & Shipping	127,000	Mitsubishi Heavy Industries	Australia/Japan
Northwest Stormpetrel	1994	North West Shelf Venture	ALSOC	127,000	Mitsubishi Heavy Industries	Australia/Japan
Northwest Swift	1989	NYK, Mitsui O.S.K. Lines, K Line Corp.	NYK	127,000	Mitsubishi Heavy Industries	Australia/Japan
Galeomma	1975	Argent Marine Services	Argent Marine Services	126,540		Oman/USA
LNG Delta (ex-Southern)	1975	Argent Marine Services	Argent Marine Services	126,450		Nigeria/Europe
Golar Freeze	1977	Golar Gas Operations	Gotaas Larsen (Osprey)	126,000		
Golar Spirit	1982	Golar Gas Cryogenics	Gotaas Larsen (Osprey)	126,000	Kawasaki Heavy Industries	Indonesia/Korea
Hoegh Gandria	1977	Liquimarine Gandria	Leif Hoegh	126,000	Howaldtswerke	Indonesia/Korea
Banshu Maru	1983	NYK, Mitsui O.S.K. Lines, K Line Corp.	NYK	125,000	Mitsubishi Heavy Industries	Indonesia/Japan
Bishu Maru	1983	K Line Corp., Mitsui O.S.K Lines, NYK	K Line Corp.	125,000	Kawasaki Heavy Industries	Indonesia/Japan
Dewa Maru	1984	K Line Corp., NYK, Mitsui O.S.K. Lines,	K Line Corp.	125,000	Mitsubishi Heavy Industries	Indonesia/Japan
Echigo Maru	1983	NYK, Mitsui O.S.K. Lines, K Line Corp.	NYK	125,000	Mitsubishi Heavy Industries	Indonesia/Japan
Gimi	1976	Golar Gas Tankers	Gotaas Larsen (Osprey)	125,000	Howaldtswerke	
Hilli	1975	Golar Gas Carriers	Gotaas Larsen (Osprey)	125,000	Moss Rosenberg	
Hyundai Greenpia	1996	Hyundai, other Korean companies	Hyundai Merchant Marine	125,000	Hyundai Heavy Industries	Malaysia/Korea
Hyundai Utopia	1994	Hyundai, Yukong, others	Hyundai Merchant Marine	125,000	Hyundai Heavy Industries	Indonesia/Korea
Khannur	1977	Golar Gas Transport	Gotaas Larsen (Osprey)	125,000		Trinidad/USA
Kotowaka Maru	1984	NYK, Mitsui O.S.K. Lines, K Line Corp.	NYK	125,000	Kawasaki Heavy Industries	Indonesia/Japan
LNG Abuja	1980	Lachmar	Ahrenkiel	125,000		Nigeria/Europe
LNG Aquarius	1977	Wilmington Trust	Pronav Shiffahrtskontor	125,000	General Dynamics	Qatar/USA
LNG Aries	1977	Wilmington Trust	Pronav Shiffahrtskontor	125,000	General Dynamics	Brunei/Korea
LNG Capricorn	1978	Wilmington Trust	Pronav Shiffahrtskontor	125,000	General Dynamics	Indonesia/Japan
LNG Edo	1980	Lachmar	Ahrenkiel	125,000		Nigeria/Europe
LNG Flora	1993	Gas Co., Mitsui O.S.K. Lines, NYK, K Line	NYK	125,000	Kawasaki Heavy Industries	Indonesia/Japan

Enclosure 1

LNG Gemini	1978	Patriot I Shipping	Pronav Shiffahrtskontor	125,000	General Dynamics	Indonesia/Japan
LNG Leo	1978	Patriot II Shipping	Pronav Shiffahrtskontor	125,000	General Dynamics	Indonesia/Japan
LNG Libra	1979	Hull Fifty	Pronav Shiffahrtskontor	125,000	General Dynamics	Indonesia/Japan
LNG Taurus	1979	U.S. Trust of New York	Pronav Shiffahrtskontor	125,000	General Dynamics	Indonesia/Japan
LNG Virgo	1979	Patriot IV Shipping	Pronav Shiffahrtskontor	125,000	General Dynamics	Indonesia/Japan
Matthew	1979	Cabot (Distrigas)	Gotaas Larsen (Osprey)	125,000		Trinidad/USA
Northwest Sandpiper	1993	North West Shelf Venture	Shell International Trading & Shipping	125,000	Mitsui Engineering and Shipbuilding	Australia/Japan
Northwest Shearwater	1991	North West Shelf Venture	BP Shipping	125,000	Kawasaki Heavy Industries	Australia/Japan
Northwest Snipe	1990	North West Shelf Venture	ALSOC	125,000	Mitsui Engineering and Shipbuilding	Australia/Japan
Northwest Swallow	1989	Mitsui O.S.K. Lines, NYK, K Line Corp.	Mitsui O.S.K. Lines	125,000	Mitsui Engineering and Shipbuilding	Australia/Japan
Senshu Maru	1984	Mitsui O.S.K. Lines, K Line, NYK	Mitsui O.S.K. Lines	125,000	Mitsui Engineering and Shipbuilding	Indonesia/Japan
Wakaba Maru	1985	Mitsui O.S.K. Lines, NYK, K Line Corp.	Mitsui O.S.K. Lines	125,000	Mitsui Engineering and Shipbuilding	Indonesia/Japan
YK Sovereign	1994	SK and other Korean companies	SK Shipping	125,000	Hyundai Heavy Industries	Malaysia/Korea
LNG Lagos	1978	Bonny Gas Transport	Shell International Trading & Shipping	122,255		Nigeria/Europe
LNG Port Harcourt	1977	Bonny Gas Transport	Shell International Trading & Shipping	122,255	Chantiers de l'Atlantique	Nigeria/Europe

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Enclosure 2 Chart Addressing Data Requirements of 33 CFR 127.007 (d)(6)

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MAP KEY

Refer to Chart that identifies No.1-a thru 3-a

1.		*Environmentally sensitive areas within the impacted area*
	1-a	Clatsop County Net Pen Fisheries Project (Coho smolts) located in Cathlamet Bay, (RM18 – RM19) and Blind Slough (RM27).[1].
	1-b	The Lewis & Clark National Wildlife Refuge (NWR) includes twenty-three named and charted islands adjacent to Cathlamet Bay, Calendar Slough, Brownsmead Flats, Blind Slough and Clifton Channel. These lands are owned by the Oregon Division of State Lands and are managed cooperatively with the Julia Butler Hansen NWR Columbia White-tailed Deer, Cathlamet, WA , the Oregon Department of Fish and Wildlife and U.S. Fish and Wildlife.[2] The map depicts the Julia Butler Hansen NWR in purple. State owned forest lands, shown in teal color, are not environmentally sensitive.
	1-c	Big Creek Fish Hatchery (release Coho smolts)[3], (RM26).
	1-d	Gnat Creek Fish Hatchery (release Spring Chinook and Winter Steelhead smolts)[4], (RM27).
	1-e	Corps Channel Improvement Project includes mitigation for dredging; Lois Island Embayment (RM 18-RM20), Miller- Pillar Islands (RM25-RM26) and Tenasillahe Island (RM36-RM37) are designated areas for restoration projects.[5]
2.		*All businesses/facilities positioned within the impacted area[6]*
	2-a	Industrial Uses include Tongue Point (The base was deactivated in January 1962, and since then the property has been divided among several different owners including non-DoD agencies of the Federal government, the Oregon Division of State Lands, and private parties), (RM 17- RM19).
	2-b	Commercial Uses
3.		*All incorporated towns within the impacted area[7]*
	3-a	Skamokowa, WA, not incorporated but has 2 commercial uses and a handful of clustered residential uses, (RM 34).
	Red Dots	The map depicts names of towns shown as red dots along the river. With the exception of unincorporated Skamokowa, these red dots are not significantly developed areas. They are mostly remnants of old fishing villages or lumber mill-towns, e.g. ghost towns.

[1] Data source: http://www.co.clatsop.or.us/land-use/Fisheries.

[2] Data source: http://gorp.away.com/gorp/resource.

[3] Data source: http://www.clatsopwatersheds.org/, Nicolai-Wickiup Watershed Assessment 2000.

[4] Data source: http://www.clatsopwatersheds.org/, Nicolai-Wickiup Watershed Assessment 2000.

[5] Data source: www.nwp.usace.army.mil/issues/crcip/cms/home.asp Final Supplemental Integrated Feasibility Report and Environmental Impact Statement - January 2003.

[6] The mapped information is based on county tax assessor's records. The tax records were obtained from Pacific and Wahkiakum Counties, Washington State and Clatsop County, Oregon. The tax-based data was sorted by Township, Range and Section No.; then the information was further sorted by tax codes to extrapolate commercial and industrial uses. The map depicts approximate situs locations of all industrial and commercial uses.

[7] Data source: http://www.fema.gov/fima/ map review, http://www.econ.state.or.us/, listing of cities and verbal verification with respective tax assessor or county planning staff.

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Sector Portland

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Richard R. Hoffmann
Director of Gas – Environmental & Engineering, PJ-11
Federal Energy Regulatory Commission
888 First Street, N.E., Room 62-45
Washington, DC 20426

WATERWAY SUITABILITY REPORT FOR BRADWOOD LANDING LNG

Dear Mr. Hoffmann:

On February 28, 2007, the Coast Guard completed a review of the Waterway Suitability Assessment for the Bradwood Landing LNG Terminal project submitted by Northern Star Natural Gas, LLC in May of 2006. This review was conducted following the guidance provided in Navigation and Vessel Inspection Circular (NVIC) 05-05 of June 14, 2005. 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 Port Waterway Safety Committee, and the Area Maritime Security Committee.

Based upon this review, I have determined that to make the Columbia River suitable for the type and frequency of LNG marine traffic associated with this project, additional measures will be necessary 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 report which is being provided to you under the terms and conditions established for handling Sensitive Security Information. This supplemental report also includes a copy of the Bradwood Landing LNG Waterway Suitability Assessment. This determination is preliminary because the required NEPA analysis has not yet been completed.

The following is a list of specific risk mitigation measures that must be put into place to responsibly manage the safety and security risks of this project. Details of each measure, including adequate support infrastructure, will need to be further developed 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 shall 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 routinely 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.)

While the vessel is moored at the facility there shall 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 report.

- Vessel Traffic Management Due to a narrow shipping channel, numerous navigational hazards, and the proximity to populated areas, LNG vessels will be required to meet the following additional traffic management measures:
    - A Transit Management Plan will be developed in coordination with River Pilots, Bar Pilots, Escort Tug Operators, Security Assets and the Coast Guard prior to the first transit.
    - This plan will be reviewed within six months of the initial 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, there will be at least 2 Pilots throughout the transit.
    - For at least the first six months, all transits will be daylight only, unless approved in advance by the COTP.
    - The LNG Vessel must board Pilots at least 5 miles before the CR Buoy.
    - Overtaking by or of the LNG Vessel is prohibited without COTP approval.
    - Meetings situations of commercial vessels will be closely controlled. All meetings must be pre-arranged via Channel 13 VHF Bridge-to-Bridge and will be limited to the following areas:
        - From the CR buoy to Tongue Point, with the exception that commercial vessels shall avoid meeting in all turns, and between buoys 22 and 29, and buoy 33 and 42,
        - Vessels may arrange meetings from Tongue Point to Rice Island between buoy 42 and 54,
        - Altoona to Pillar Rock Miller Sands Light #11 to Light # 17,
        - Price Island to Puget Island between buoy 32 and Bradwood.
    - 24 hours prior to arrival, the Coast Guard, FBI, Bar Pilots and River Pilots, Escort Tug Masters, and other Escort assets will meet to coordinate inbound and outbound transit details
    - Vessel transits and bar crossings will be coordinated so as to minimize conflicts with other deep draft vessels, recreational boaters, seasonal fisheries, and other Marine Events

Resource Gaps: The Vessel Transit Management Plan must be approved by the COTP at least 30 days prior to the first arrival.

- Vessel Traffic Information System / Vessel Traffic 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 will need to be augmented with a robust camera system capable of monitoring the entire transit route. Due to weather concerns, these cameras must be equipped with detectors capable of monitoring vessel traffic in wind, rain and fog conditions common on the river. In addition this capability may need to be augmented in the future with additional command and control capability and the establishment of a full Columbia River VTS.

Resource Gaps: Camera system with complete coverage of the entire transit route, capable of detecting vessel traffic in wind, rain, fog, and dark conditions. An additional AIS repeater

located in Astoria is also required to provide complete coverage of the Lower Columbia. If implemented, a fully staffed VTS would require at least 2 watch standers and a supervisor or 20 personnel to maintain round-the-clock coverage.

- Tug Escort and Docking Assist Due to the confined channel and high wind conditions, each LNG Carrier must be escorted by two tugs; at least one of which must be a tractor tug, which will join the vessel as soon as safe to do so. The primary tug will be tethered at the direction of the pilot. A third tug will be required to assist with turning and mooring.

  All three tugs will be at least 60 Ton Astern Bollard Pull or larger and equipped with Class 1 Fire Fighting equipment. Based on the Maneuvering Simulation Study of November 4, 2005, vessels over 140,000 m^3 will be limited to transiting during periods of 25 knots of wind or less. Additionally, extreme wind and weather conditions may require a third tug escort tug for any LNG vessel. While unloading, all three tugs will remain on standby to assist with emergency departure procedures.

  Resource Gaps: Three 60 Bollard Ton Tractor Tugs with Class 1 Fire Fighting capability.

- Navigational Aids Buoys or Daymarks will be required:
  - Three Aids at Bradwood, outlined in Figure 3, on p. 8 of the Vessel Maneuvering Simulation Study of November 4, 2005.
  - Range on Upper and Lower Desdemona Reach
  - PORTS (Physical Oceanographic Real-Time System) station at Bradwood contracted with NOAA to provide real time river level, current and WX data
  - Doppler docking station similar to the one found in Savannah River

- LNG Carrier familiarization training for Pilots and Tug Operators Prior to the arrival of the first vessel, simulator training will be required 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 bar conditions is strongly recommended as increasing the ability to safely navigate the Columbia River Bar during marginal 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 required 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 pre-arrival inspection, and 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 will 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 and regional response agencies through the Emergency Response Planning process. Prior to the approval of the Emergency Response Plan, 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.

- In-Transit Fire-Fighting 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 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 required. 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 Emergency Response Planning process, a comprehensive notification system, including the deployment of associate equipment and training, will need to be developed.

- 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.

- Communication Systems and Protocols Inter-agency communication pose a significant obstacle to joint operations. Deployment of a Regional Communication Plan and associated equipment is required 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 must provide for monitoring and communicating on both secure and unsecure (eg 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.

Security Measures:

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

- Additional Measure While A Cruise Ship is in Port While cruise ships are moored or anchored at the Port of Astoria, LNG vessels will be restricted to transiting in good visibility (6 miles or more). In addition, any cruise ship will also require separate waterside security, during the LNG Transit. Finally a Cruise Ship and LNG Carrier shall not be placed in a meeting situation.

  Resource gap: Sufficient Coast Guard or local law enforcement assets to provide adequate and independent security for both vessels.

- 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 shall also develop a plan to provide for appropriate security measures from the start of construction through implementation of the Coast Guard approved FSP.

- Sandia Study The WSA proposes to receive vessels with up to 200,000 m^3 cargo capacity. The Sandia Report is based on consequences of LNG breaches, spills and hazards associated with LNG vessels having a cargo capacity no greater than 148,000 m^3 and spill volumes of 12,500 m^3. There remains some question as to the size of hazard zones for accidental and intentional discharges and the potential increased risk to public safety from LNG spills on water for larger vessels. Based on these existing uncertainties, Northern Star must either complete a site-specific analysis for the largest sized LNG vessel or limit arrivals to vessels with a cargo capacity no greater than 148,000 m^3 until additional analysis addressing vessels with higher cargo capacities is completed.

In the absence of the measures described in this letter 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 Bradwood LNG terminal. Due to the dynamic nature of the Columbia River, the applicant shall be required to submit an annual update to the Waterway Suitability Assessment to the Coast Guard which shall be revalidated by the COTP and AMSC. For further information, please contact LT Shadrack Scheirman of Coast Guard Sector Portland at (503) 240-9307.

Sincerely,

Patrick G. Gerrity
Captain, U.S. Coast Guard
Captain of the Port
Federal Maritime Security Coordinator

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