

State Agencies

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THEODORE R. KUONGOSKI
GOVERNOR

December 13, 2007

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First ST NE, Room 1A
Washington, DC 20426

Re: Comments of the State of Oregon
Draft Environmental Impact Statement
Bradwood Landing LLC Docket No. CP06-366
Northern Star Energy LLC Docket Nos. CP06-366, CP06-376 and CP06-377

Dear Secretary Bose:

At my direction, State of Oregon natural resource agencies have been engaged in a review of the proposed Bradwood Landing Liquefied Natural Gas (LNG) import terminal and its associated pipeline. Oregon's comments on the Draft Environmental Impact Statement for this project are attached. My primary motivation for a detailed state review of this document is to ensure that state standards and concerns are addressed by the developer and by the Federal Energy Regulatory Commission.

As Governor of the State of Oregon, I do not support a statewide, categorical exclusion of LNG terminals from Oregon. Locating an LNG import terminal in Oregon, however, must be supported by a comprehensive review of all potential impacts of the facility in Oregon. That is the function of the Bradwood Landing DEIS. As more fully explained below and in the accompanying comments, the Bradwood Landing DEIS is incomplete and flawed in a number of respects.

Oregon has an effective system for siting large energy facilities that balances the need for new energy resources effectively with environmental protection and adequate safety standards. That siting process effectively involves all interested Oregon natural resource agencies in the review of any facility. As a result of Oregon's unified siting process, state natural resource agencies have attained a high level of expertise in evaluating applications and contributing not only to the analysis of the environmental impacts but also to the design and adoption of appropriate mitigation measures. In fact, Oregon was in the midst of reviewing an application for the Bradwood Landing facility under the state siting process when the Energy Policy Act of 2005 was enacted, effectively ending state-level review. As a result of this experience and expertise, Oregon is uniquely situated to provide comments on this proposed facility.

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The State retains permitting authority over LNG terminals in the areas of water quality, air quality, and coastal zone management, and in cases where state approval is needed for construction of terminals or appurtenant structures on state lands. In many instances, the DEIS is the best evidence about the applicant's plans for compliance with those federally delegated programs. In their comments, the Oregon agencies involved have identified deficiencies that present hurdles to the ultimate approval of the project by those agencies.

As the specific comments will reflect, many conclusions in the DEIS are founded on assertions and promises, not on sound science, comprehensive analysis and empirical facts. The Commission should not make a decision to license this LNG terminal on the inadequate environmental record currently before the Commission.

Comments sent to state agencies by Northern Star late in the comment period suggest that there is information contained in the administrative record or currently circulating for review that may address some of Oregon's concerns. Because that information is not contained in the DEIS, we are compelled to assert those concerns. It is well-established that the final EIS, as the foundation for the licensing decision by FERC, must be complete. Thus, any mitigation plan or other document that will be relied on by FERC to determine that the facility meets licensing criteria must be included in the DEIS and circulated for meaningful review before adoption of the final EIS. Furthermore, such plans and documents must be referenced in license conditions in the final decision.

SA1-A As an example of the inadequacy of the DEIS, large portions of the mitigation for habitat, wetlands, archaeological impact, landside protection and emergency planning are still unknown. Indeed, many supporting documents for the licensing decision will be produced after the opportunity for comment on the DEIS has closed. This is a fundamental process flaw. We recommend delaying the Final Environmental Impact Statement (FEIS) until the design is finalized, mitigation plans with metrics are written, and emergency response protocols can be defined, and after interested parties have had an opportunity to comment on the efficacy of those plans. We further recommend that, when the FEIS is presented, it clearly presents the required information used to develop and articulate measurable project specific conditions that demonstrate how the facility would meet Oregon's standards. Agreements made outside the FERC licensing process cannot be considered durable and therefore do not provide adequate assurance that the facility will be constructed, operated, maintained, and decommissioned as required by Oregon's Energy Facility Siting standards.

Liquefied Natural Gas terminals also introduce a companion suite of issues associated with natural gas pipelines that carry LNG from terminals to service areas, sometimes at great distances. The social and environmental impacts of these pipelines are of as much concern to the State as the terminals themselves. Accordingly, Oregon agencies have also identified and evaluated the environmental and social impacts of these pipelines through federal and state permitting processes. Further, because pipeline companies who obtain a FERC license have the power of eminent domain, I have insisted that that power be used carefully and with the utmost respect for property

SA1-A We disagree that the EIS is either inadequate or flawed because mitigation plans for archaeological resources have not been finalized. As stated in section 4.9.4, the process of complying with the NHPA cannot be completed until after the FERC issues its Order authorizing the project, which would allow NorthernStar to use the power of eminent domain to acquire a right-of-way easement over parcels of land where access was previously denied so that the cultural resources inventory could be finished. Once the survey is done, the FERC would determine if any historic properties would be adversely affected. If there would be no impacts on historic properties, no mitigation plans would be necessary. If historic properties would be adversely affected, the FERC would consult with the appropriate parties to resolve impacts, and treatment plans would be formulated. It is standard FERC practice to condition an Order so that the process of complying with the NHPA can be completed after an Order is issued but before construction is allowed to begin. Also see our response to comment FA2-22.

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rights that includes fair compensation and full mitigation of impacts to property owners, as well as recognition of the need to be responsive to citizens concerns and public requests for information and maps of these pipeline projects. I have recently communicated those expectations to pipeline project sponsors and will continue to monitor progress in this matter.

Northern Star has provided evidence that the proposed project will offer substantial economic benefits to the local community, including:

- Enhanced capacity for river commerce (new bar and river pilots, new tugs);
- Property tax revenue for Clatsop County and special districts (increase 92.4 percent);
- Construction jobs (331 per year for three years, 506 peak); and
- Operational jobs (50 FTE, average \$60K, 15 FTE security)

Those economic benefits must be balanced with the environmental impacts of the facility.

I highlight the following major concerns regarding the DEIS, which are addressed in more detail in the accompanying comments.

- a. The need for the facility has not been established and the alternative analysis is inadequate.** The DEIS does not adequately analyze market data and natural gas supply trends to support the claim by the developers that additional supplies of LNG are needed in the Pacific Northwest. Nor does the DEIS contain a comprehensive list of alternatives that include no action, energy conservation, expansion of existing infrastructure, and potential new sources of natural gas, including domestic, continental and offshore supplies.
- b. The DEIS needs to adequately reflect scientific information from geotechnical reports.** The state agencies have identified several instances where the DEIS provided incorrect technical statements and statements with no substantiating science. That failure undermines the credibility of the entire analysis.
- c. In many cases, the DEIS depends on assertions that mitigation will be provided, but the details of the mitigation are unknown.** For example, regarding mitigation for impacts to fish, although Northern Star has proposed to spend \$50 million over the 40 to 50 year life of the Bradwood Landing project on a Salmon Enhancement Initiative, the Initiative would be entirely voluntary (not regulatory), and its effectiveness is unknown. Similarly, the DEIS provides no clear compensatory mitigation plan for impacts from dredging or wharf construction activities.
- d. The proposed project would have adverse impacts on air and water quality in the Lower Columbia watershed.** Proposed dredging for the terminal, turning berth and pipeline will cause damage to watershed function, water quality and sensitive species and habitats, and those impacts have not been adequately evaluated or addressed in the DEIS. Supply ships and vaporizers will contribute air pollutants. Proposed mitigation measures are not sufficient to offset the damage that will be done, and cumulative impacts need to be thoroughly analyzed.

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e. The DEIS does not adequately recognize Oregon's role in emergency preparedness. No enforceable commitment has been made for Emergency Response resources necessary to operate at the proposed facility, nor were safety and security impacts to the local communities adequately assessed. In addition, the DEIS does not recognize that the Oregon Department of Forestry (ODF) is an emergency responder to wildfires on private, rural and state owned lands, and that ODF needs to be consulted on emergency response planning.

f. The DEIS does not contain mitigation recommendations requiring Northern Star to mitigate CO2 emissions and to provide financial assurance to retire the facility. A detailed engineering estimate of site retirement costs should be required and assurances gained that those costs will be covered, before FERC issues a Final EIS. Without those assurances, Oregon has no protection against bankruptcy or abandonment of the facility.

In summary, I believe that the State of Oregon and the Commission must fairly address all the benefits and costs associated with LNG facilities and determine if LNG has a role as a "bridge" source of energy for Oregon and the Northwest. For the Commission to make LNG siting decisions in a vacuum, without the benefit of the best available information and scientific data, would do a huge disservice to the people of Oregon. Ultimately, the decision to site terminals requires the full engagement of the federal government, the state and the communities where facilities are proposed. But, as noted in paragraph four of this letter, Oregon holds authority in the important areas of air quality, water quality and coastal zone management. Only by working together through the siting, environmental assessment and permitting processes, with the benefit of a complete and substantial environmental impact statement, can we make sound decisions about the appropriateness of any proposed LNG terminal.

I look forward to your resolution of Oregon's concerns.

Sincerely,


THEODORE R. KULONOSKI
Governor

TRK:rajb
Enclave

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HARDY MYERS
Attorney General



PETER D. SHEPHERD
Deputy Attorney General

DEPARTMENT OF JUSTICE
GENERAL COUNSEL DIVISION

December 18, 2007

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

Re: Bradwood Landing LLC Docket No. CP06-365-000
NorthernStar Energy LLC Docket CP06-366-000
Nos. CP06-376-000
CP06-377-000

DOJ File No. 330-050-GN0560-06

Dear Secretary Bose:

Enclosed for filing in the above referenced proceedings are the State of Oregon's Comments on Bradwood Landing Natural Gas Importation Terminal Draft Environmental Impact Statement.

Sincerely,

Janet L. Prewitt
Assistant Attorney General
Natural Resources Section

Enclosures

JLP:js/GENW3156

c Service Lists

Michael Grimes, Oregon Department of Energy (electronic copy only)
Michael Carter, Governor's Office (electronic copy only)
Jan Adams, Natural Resources, DOJ (electronic copy only)

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STATE OF OREGON COMMENTS ON
BRADWOOD LANDING NATURAL GAS IMPORTATION TERMINAL
DRAFT ENVIRONMENTAL IMPACT STATEMENT
12/18/2007

GENERAL COMMENTS

The Purpose and Need Analysis is Inadequate

- K-432
- SA1-1 Oregon is disappointed with the level of detail in the document. Much of the Bradwood Landing draft environmental impact statement (DEIS) contains only general information and conclusions about environmental and resource effects. Specifically, the general nature of the Federal Energy Regulatory Commission (FERC or the Commission) review of the project "purpose and need" and related "alternatives" analysis is inadequate. The DEIS does not sufficiently describe the basis for determining the regional and national need for an LNG import terminal and pipeline project in this location or provide a clear set of objectives that provide a rational basis upon which need can be assessed.
- SA1-2 As a result, only general information about market demand for natural gas is included in the DEIS document. More importantly, there is no overall national or regional energy plan to guide the siting and construction of natural gas infrastructure that assures the economic and efficient provision of import terminal and pipeline facilities. Because of the absence of specific information documenting the need for terminal and pipeline facilities in this location and the Pacific Northwest and the FERC practice that relies on applicants to propose projects for case-by-case review, the DEIS does not adequately assess fundamental energy infrastructure planning issues. Such an approach could result in approval of several terminal and pipeline projects, each with significant environmental effects, that provide excess import terminal capacity, unnecessary pipeline infrastructure and unnecessary environmental effects. The public interest is best served by a meaningful analysis of need and alternatives.
- SA1-3 Currently, in Oregon, there are three active proposals for LNG import terminals and four active proposals for interstate pipeline projects. Although applicants understand that not all of the projects will be constructed, each is being pursued as if it will be constructed. The lack of specific guidance or planning policies at the federal level requires public and government agencies at all levels to devote resources to reviewing these projects, at a substantial cost.
- The DEIS concludes, without substantiation, that some alternatives are not feasible. The DEIS merely concludes that some alternatives do not meet the objectives of the Bradwood Landing project without assessing the validity of the stated objectives and that other alternatives do not provide significant environmental advantages without comparing specific economic and environmental costs and benefits. Without some commonly accepted set of criteria upon which to review each of the proposed LNG import terminal and pipeline projects currently proposed in the region (which would include other projects on the Columbia River and in Coos Bay), the State can not determine whether the Bradwood Landing LNG import terminal and pipeline represents a superior site for such a facility from an economic, environmental and social perspective. As was suggested in Oregon's March 3, 2006 letter:

SA1-1 See our response to comment FA4-1.

SA1-2 Section 1.1 presents a summary of project purpose and need, including some information about regional markets. However, market issues and the need for this project would be more fully developed in the Commission's Order.

SA1-3 We disagree. The EIS provides our reasons for finding some alternatives to not be feasible. The project objectives, and the criteria we used to evaluate alternatives, are clearly explained at the beginning of section 3.1. Further criteria we used to consider alternative LNG terminal locations are outlined in section 3.1.5.3. See our response to EPA (comment FA3-14). The State of Oregon does not have the authority to determine a superior site for such a facility. The FERC has sole authority to site onshore LNG import terminals under the NGA and EPAct 2005. We do not choose between alternative locations, but evaluate each proposal on its individual merits. See also our responses to comments PM2-23, PM2-27, PM2-29 and PM2-31.

SA1-3 cont'd	<p>The alternatives analysis should include evidence and findings to support conclusions. At this point the resource report includes conclusory statements without clear findings that link evidence to applicable local, state and federal requirements. We recommend that the alternatives analysis be based on relatively clear standards. Objective standards tied to regulatory requirements and commonly recognized LNG import terminal needs are more useful than subjective or general standards.</p> <p>The DEIS continues to treat the need and alternatives analysis in a superficial manner.</p> <p>Geologic Site Stability</p>
SA1-4	<p>The DEIS should accurately reflect the content of geotechnical reports. Our review found several instances of incorrect technical statements and statements with no substantiating science in the DEIS. The DEIS should be reviewed by the contracted geotechnical authors to ensure proper incorporation of vital technical geological and engineering information and data. The contracted geotechnical reports should be reviewed by independent, qualified licensed or registered professionals. If this has been done then those reviews should be referenced and made available in appendices.</p>
SA1-5	<p>The DEIS did not adequately address mitigation of natural hazards including but not limited to:</p> <ul style="list-style-type: none"> • Adequate tsunami wave modeling • Liquefaction and ground stability • Landslide and debris flow characterization • Flooding
SA1-6	<p>In addition, there is no discussion of monitoring programs to accompany the operation of the facility. At the very least we recommend the facility emplace shoreline erosion monitoring.</p> <p>Fish Habitat Impacts</p>
SA1-7	<p>The DEIS does not include information on the amount of shallow-water fish habitat (habitat 20 feet in depth or less) that would be affected by the wharf structure, concrete berm, water intake etc. These impacts to shallow-water feeding and rearing habitat favored by juvenile salmonids such as chum, Coho and Chinook salmon need to be specifically defined and delineated.</p>
SA1-8	<p>The DEIS does not address how much shallow-water habitat may be adversely affected in areas below the dredging sites in the Clifton Channel. Quantifying the loss of shallow-water habitat from changes in hydraulic characteristics of the channel needs to take place and the number of juvenile salmonids affected by this loss of habitat should be estimated to determine appropriate compensatory mitigation. The anticipated reduction in the hydraulic characteristics, due to dredging 700,000 cubic yards of sediment to create turning basins, also suggests a likely reduction in juvenile salmonid shallow-water habitat and possibly an increase in habitat for predators like pikeminnow and bass.</p>
SA1-9	<p>Since initial dredging of the proposed turning basin and ship berth will remove approximately 45 acres of deep water (deeper than 20 feet) bottom habitat and maintenance dredging may need to</p>

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SA1-4 The EIS is a summary document that is written for a general audience and is not intended to be highly technical in nature. Technical reports (i.e., geotechnical reports, geohazard reports, seismic hazard analysis reports) prepared by qualified engineers and geologists have been provided to ODE and DOGAMI and are available to the public in the FERC's eLibrary. This document is available for viewing by the public on the FERC's internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e., CP06-365), and putting in the proper date range. This information has been reviewed by the FERC staff and its third-party contractor, including licensed professional geologists and engineers. The reports have also been reviewed by the FERC's consulting seismic design and geotechnical engineers.

These reports assess the site-specific earthquake probabilities, the geotechnical site conditions, and the site-specific effects of earthquake shaking on the proposed facility as required by NFPA 59A, and as further detailed in FERC's Seismic Design Guidelines (Jan. 2007).

The work performed to date is sufficient to characterize the major geological aspects of the site and to understand the significant geotechnical issues that must be addressed in the later, more detailed, design phase of the project. The facility must be designed to withstand a major CSZ earthquake, without loss of the storage tank contents as required by NFPA 59A. There is a high probability that underlying soils at the site, if unmodified, would liquefy during a significant earthquake and that vertical settlement and several feet of lateral spreading towards the river would occur. Proposed mitigation measures (including deep pile foundations and soil densification through vibroflotation) are included to minimize the liquefaction potential and large displacements.

Through the FERC Staff's Recommended Certificate Conditions, NorthernStar would be required to provide additional design details prior to initial site preparation and to demonstrate that the proposed site improvements achieved the necessary subgrade conditions prior to receiving approval to construct the remainder of the facility. The FERC Staff also recommends that NorthernStar be required to retain the services of an independent Board of Consultants, that would review and certify that all civil and structural detailed design calculations and construction documents are in compliance with all applicable codes, standards and project civil and structural design criteria, that all civil and structural construction is in conformance with the project construction documents, that all procured equipment has been properly seismic qualified in conformance with the project seismic qualification requirements, and that seismic detailing of structures has been properly implemented.

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- SA1-5 These topics are addressed in responses to comments appearing later in this comment letter.
- SA1-6 See our response to comment SA1-96.
- SA1-7 Section 4.5.2.1 has been revised to quantify direct impacts on shallow water habitats.
- SA1-8 Section 4.5.2.1 has been revised to quantify direct impacts on shallow water. Potential impacts on wetlands and wildlife due to construction and operation of the LNG terminal are described in sections 4.4.1.2 and 4.5.2. See also our response to comment FA2-11.
- SA1-9 The rationale for the predicted frequency of maintenance dredging is included in the Hydrodynamic and Sediment Transport Assessment that was conducted for the Bradwood Landing Project. This document was filed with the FERC as part of its Application on June 5, 2006. This document is available for viewing by the public on the FERC's internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e. CP06-365), and putting in the proper date range. We agree that impacts on the berth and maneuvering area would be permanent, as is presented in both table 2.3-1 and in section 4.5.2.1.

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- SA1-9 occur every two years, and benthic communities that salmonids depend on for food may take as long as two to three years to recolonize (DEIS, page 4-135), the habitat in question should be considered permanently lost and not temporarily disturbed (Appendix G, page 103).
- SA1-10 There are no estimates in the DEIS on the number of juvenile salmonids that rear in areas that would be affected by construction of the wharf structure, pilings, shoreline concrete berm, water intakes, etc. FERC did estimates of potential juvenile salmonid usage around those areas they suggested as mitigation sites (Svensen Island) (Appendix G, page 41), but not of areas to be disturbed by the activities proposed in the shallow-water fish habitat area. In order to make a fair comparison or assessment of the value of habitat around Svensen Island to that of Clifton Channel, sampling results from juvenile seining completed in the Clifton Channel or estimates of salmonid usage should be included in the DEIS.
- SA1-11 FERC states that by restoring/enhancing habitat at Svensen Island, they will more than meet their mitigation requirement (DEIS, page 4-143, Appendix G, page 104). FERC suggests that by restoring and or enhancing a total of approximately 235 acres at lower and middle Svensen Island they would be meeting the compensatory mitigation requirement of three acres enhanced for every acre lost. Considering that the down-stream Clifton Channel shallow-water habitat lost from effects of the creation of the turning basin has not yet been determined, it is not possible to determine the adequacy of the proposed mitigation.
- SA1-12 When discussing compensatory mitigation for loss of habitat, FERC needs to make a distinction between what they intend to restore and what they intend to enhance. If their intention is to restore habitat then the ratio of one acre restored for every acre lost needs to be applied. If enhancement is their intention, then the ratio of three acres enhanced for every acre lost would be the goal.
- SA1-13 Within the Wildlife and Aquatic Resources section of the DEIS, the fish screening provisions for the LNG ships do not provide adequate detail. This section does state that the ships would be provided with filtered water however, there is no mention of "fish screens." There also is no mention that the screens for the ships will be designed to meet National Marine Fishery Service (NMFS) or Oregon Department of Fish and Wildlife (ODFW) fish screen criteria, or that NMFS and ODFW will review and approve screen designs. Fish screens for the ship ballast and cooling water intakes as well as for all other surface water uses must meet NMFS and ODFW standards. Oregon recommends that a condition be added to the final EIS stating that the screens for ship cooling and ballast water will meet NMFS fish screening criteria and the design will be approved by NMFS and reviewed by ODFW prior to installation. Oregon also recommends that a testing system be included as a condition in the final EIS to ensure that the screens work properly since this is an as-of-yet unproven screening system. Oregon believes that screening the ships' cooling and ballast water intakes on the wharf may be the best solution.
- SA1-14 Oregon also requests that the Commission include a condition that allows Oregon to review, comment on and approve all design-level detail for fish screens for all surface water uses for the terminal site, ships and pipeline in Oregon. Screening of water intakes includes water use for the LNG ships' cooling and ballast water, hydrostatic testing of LNG tanks and pipelines, soil compaction and ground improvements, and the fire suppression system. Screening is also addressed specifically for the dam and pump method for pipeline water body crossings. If any

- SA1-10 Additional information has been provided in section 4.6 estimating the numbers of juvenile salmonids that rear in the vicinity of the LNG terminal site.
- SA1-11 See our response to comment FA2-10.
- SA1-12 Section 2.1.5 has been revised to clarify that the Hunt Creek Mitigation Site would be preserved; the lower Svensen Island Mitigation Site would be preserved and limited enhancement activities would be implemented by NorthernStar; and the middle Svensen Island, Delameter Creek, and Petersen Point Mitigation Sites would be restored as compensatory mitigation for unavoidable impacts associated with the Bradwood Landing Project.
- SA1-13 See our response to comments PM1-31 and FA1-28.
The FERC staff's recommendation in section 4.5.2.1 that NorthernStar conduct post-installation water flow mapping through all intake screens at the LNG terminal would provide adequate testing of the system. In addition, we have recommended that NorthernStar consult with the NMFS and ODFW to develop a monitoring program that would assess the effects of impingement and entrainment from use of the screened water supply system on juvenile salmonids during terminal operations.
- SA1-14 As stated in section 2.1.3.6, all fixed intakes at the proposed LNG terminal that withdraw water from the Columbia River would be screened. In addition, as described in section 4.2.3 of the Waterbody and Wetland Construction and Mitigation Procedures Plan, screens would be installed on pump suction hoses to prevent the entrainment of aquatic species in waterbodies crossed using the dam and pump method.
Because all intake screen designs have been reviewed and approved by the NMFS and comply with ODFW and NMFS regulations and fish design criteria, we do not feel that it is necessary to include a condition in the EIS that would require NorthernStar to submit all design-level detail for fish screens to the State of Oregon for review, comment, and approval.

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SA1-14 | fish salvage operations that require pumping occur during pipeline construction, the pump intake should be screened.

Environmental Impacts

SA1-15 | The federal agencies, including FERC, have little experience with siting this type facility in the Northwest. The few other LNG facilities that exist on the East Coast and Gulf Coast are in completely different environmental scenarios. Review and evaluation of such a project in the Northwest is complicated by the proposed location of this project far up within the riverine system (39 miles from the ocean) in a dynamic portion of the Columbia River estuary, in addition to the many endangered species listings, impaired status of the Columbia River, and lack of detailed information on cumulative impacts from activities in Oregon, Washington and Canada, which contribute to the River's listings and impairment.

The Lower Columbia River Estuary is one of 27 estuaries in the Environmental Protection Agency's (EPA) National Estuary Program and the Columbin River has recently been named by EPA a Nation's Great Water Body (one of seven in the country) and elevated to a national priority for addressing watershed health. EPA's two pronged focus for this priority is to address toxics and wetland loss. Impacts on the river environment that are contrary to these goals must be scrutinized and justified by projects that provide significant national gains to offset the regional impacts.

The West Coast Governor's Agreement on Ocean Health Draft Action Plan lists several goals related to water quality and its beneficial uses which may conflict with the proposed Bradwood Landing project. These include:

SA1-16 | • "Restore estuarine habitats, including coastal wetlands, to achieve a net increase in habitat and their function by at least ten percent over the next ten years." – The Bradwood Landing project proposes enhancement of existing wetlands and habitat, yet there would be a net loss in the estuary of up to 58 acres of in-stream habitat and 33 acres of wetlands, as well as temporal losses from temporary impacts to 98 acres of wetlands.

SA1-17 | • "Make Low Impact Development (LID) a priority for the West Coast." – The impacts of the proposed Bradwood Landing project are high, and no analysis or planning has gone toward applying LID techniques to manage polluted runoff, limit imperviousness or new surfaces, or reduce other impacts.

SA1-18 | • "Urge the International Maritime Organization to adopt the U.S. proposal which sets stringent emission standards for ocean going vessels." – The proposed Bradwood Landing project would increase ocean going vessel traffic and associated emissions.

SA1-19 | • "Develop regional sediment management plans to maximize beneficial use of sediments (i.e., sand) to protect and maintain critical community economic and environmental infrastructure." – Regional sediment management strategies should be in place to require the best re-use of material, limit the amount removed from the system, and protect downstream communities from having to deal with toxics.

SA1-15 | We disagree. The FERC has a great deal of experience in the siting of LNG import terminals throughout the United States, and the regulation of jurisdictional LNG storage "peak shaving" plants, as the FERC is the lead federal agency authorizing onshore LNG import terminals. The FERC and other federal agencies with regulatory roles have reviewed many natural gas and hydroelectric projects in the Pacific Northwest. While this experience has been relied upon for preparing the EIS for this project, the FERC has also solicited and incorporated input from other agencies, various stakeholder groups and any member of the public interested in these proceedings.

SA1-16 | We agree that the Bradwood Landing Project would result in both temporary and permanent impacts on wetlands within the Columbia River estuary. Although compensatory mitigation is not required for temporary wetland impacts, temporary impacts would be mitigated through the implementation of NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan. Because the plan has not been finalized, we have recommended in section 4.3.2.4 that NorthernStar continue to consult with the COE, NMFS, FWS, and other appropriate federal and state agencies to finalize its Waterbody and Wetland Construction and Mitigation Procedures Plan. Permanent impacts on wetlands would be mitigated by restoring and preserving habitat with similar ecological function in the general project area. NorthernStar's stated intention is to provide mitigation in areas substantially larger than that lost to permanent impacts, and restore such areas to a higher level of ecosystem function. Because NorthernStar is currently revising its Compensatory Mitigation Plan, we have recommended in section 4.4.1.2 that NorthernStar continue to consult with the COE, FWS, NMFS, ODSL, WDE, and other appropriate resource agencies to finalize its Compensatory Mitigation Plan, prior to construction of the LNG terminal and pipeline facilities.

SA1-17 | Consistency with existing land use plans, policies, designations, and guidelines is discussed in section 4.7.2.2. Management of run-off and impervious materials is discussed in section 4.3.2.3.

SA1-18 | Emissions and a discussion of air quality impacts resulting from the ocean going vessel traffic associated with the proposed project have been included in section 4.10.1 of the final EIS.

SA1-19 | NorthernStar has proposed to place sediments dredged from the maneuvering basin at the Wahkiakum County Sand Pit site for beach replenishment. The Bradwood Landing Project would not subject downstream communities to toxics.

SA1-20

- "Aquatic invasive species are considered one of the greatest threats to native species and habitats. The introduction of aquatic invasive species into West Coast waters threatens the ecological, social, public health, and economic integrity of the region's marine resources." –The Bradwood Landing project does not propose adequate measures to prevent the transport of invasive species on the LNG ships that would enter the Lower Columbia estuary.

Emergency Preparedness Planning

SA1-21

The DEIS is predicated on the assumption that critical response assets are already approved and in place. This is a major flaw in the draft emergency response plan (ERP) for the proposed Bradwood Landing LNG terminal. Without commitment to provide this region the necessary resources, Oregon is unable to conduct a thorough evaluation of Bradwood Landing's draft ERP to ensure the plan is adequate and can be effectively implemented to protect the health and safety of Oregonians in the event of an LNG mishap at Bradwood or in transit to and from the importation terminal. Commitments made outside the NEPA process must be incorporated into the FEIS to assure that needed communication and emergency response infrastructure are approved and placed into service prior to facility operations.

Emission Offset/Facility Retirement

SA1-22

The DEIS does not contain mitigation recommendations requiring Northern Star to offset CO2 emissions and to provide financial assurance to retire the facility, both of which are required by Oregon's Energy Facility Siting Standards. The FEIS should contain a detailed engineering estimate of future site retirement costs and assurances gained that those costs will be covered, before FERC issues a Final EIS. Without those assurances, Oregon has no protection against bankruptcy or abandonment of the facility. Additionally, the facility will add an undefined amount of carbon dioxide (CO₂) to the lower Columbia airshed. The amount of CO₂ to be emitted cannot be calculated without a final design, and this impact cannot be quantified. The FEIS should provide appropriate conditions for offsetting the potential emissions, followed by conditions to "true up" the calculations such that mitigation can be meaningfully implemented.

Economic Impacts

SA1-23

Knowing the impact of this new natural gas source on the regional energy situation would be helpful in determining if the project will benefit industries in the Pacific Northwest and specifically Oregon.

This project will bring in a new supply of natural gas to the region and country. This fact is not addressed in the DEIS. The project may have connections to PGE production facilities at Port Westward and to Georgia Pacific Wauna Mill. These connections could prove valuable to those facilities over time as energy costs escalate. This is not mentioned in the EIS but may have significant long term positive impacts for GP Wauna Mill and ratepayers served by PGE. This of course depends on the details of the contracts that will be executed by the companies involved.

SA1-24

FERC has asserted that this project will increase the capacity of ship piloting and tug capacity on the river to the benefit of all shipping operations. New bar and river pilots and tugboats will be

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SA1-20 Additional information on the potential for the introduction of invasive species to the lower Columbia River through hull fouling has been added to section 4.5.1.1.

SA1-21 See our response to comment PM1-1. As discussed in section 4.11.6, the ERP would need to be reviewed and approved by the FERC before any final approval to begin construction. The ERP must include a Cost Sharing Plan which must be approved by FERC before any final approval to begin construction. If the needed resources are not available and properly funded, construction and operation of the project would not be approved by the FERC.

SA1-22 Section 4.10.1.2 of the final EIS has been updated to indicate that NorthernStar has agreed to voluntarily comply with the Oregon Department of Energy's siting requirements for non-generating energy facilities, including the CO₂ emission standards, for the proposed LNG import terminal.

SA1-23 We have included in section 1.1 a discussion of the likely positive impacts of LNG on future natural gas prices.

SA1-24 The EIS does discuss using additional tugs to assist with LNG marine traffic in the waterway. It also mentions that NorthernStar is considering using the existing PWRR to bring construction materials to the LNG terminal.

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SA1-24 cont'd added as a result of this project. Additionally, it is projected that the project will generate increased rail traffic during construction and improve a portion of the rail through a required realignment at the project site.

SA1-25 It was estimated by Northern Star that based on current tax rates, property tax revenue for Clatsop County and special districts would increase by 92.4 percent upon completion of the LNG terminal and that construction jobs will average 331 per year over three years with an expected peak of 506. Northern Star has also committed to hiring at prevailing wages for all construction jobs. During operations the project is projected to generate 50 FTEs and will operate 24/7. Average salary at the terminal was estimated by the applicant at \$60,000/yr. based on prevailing wages. The project is also projected to require an additional 15 FTEs for security.

SPECIFIC COMMENTS ON DEIS

These comments follow the organization of the DEIS and include both comments on deficiencies in the evidentiary basis for the conclusions and specific recommendations for additional language or conditions. Recommendations for additional language or conditions are italicized. Oregon agencies whose comments are included here include Oregon Department of Energy (ODOE), Oregon Department of Environmental Quality (DEQ), Oregon Department of State Lands (DSL), Oregon Water Resources Department (WRD), Oregon Department of Forestry (ODF), Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon Department of Land Conservation and Development and Oregon Coastal Management Program (DLCD/OCMP), Oregon Department of Economic & Community Development (ODECD), and Oregon Department of Transportation (ODOT)

SA1-26 **Executive Summary, pg 3, paragraph 4**
Forest vegetation. Planting in clearing right-of-way will minimize the amount of area converted to a non-forest condition

SA1-27 **Executive Summary, pg 6**
Ignition and combustion potential, fire hazards. There is no acknowledgment in the Executive Summary that wildfire could potentially result from LNG or gas leak in forested settings. An analysis of this possibility should be added to the document.

SA1-28 **Executive Summary, pg 7**
Pipelines. The Palomar pipeline is addressed under Section 2, "Proposed Action" but is not mentioned in the Executive Summary. Please add a discussion of Palomar and how it relates to the Bradwood project.

SA1-29 **Executive Summary, page 9, 8th bullet**
Fire. Add language that says Oregon Department of Forestry is an emergency responder to wildfire in non-urban forested settings

1.0 INTRODUCTION

Section 1.1 Purpose and Need (p. 1-3)

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SA1-25 Section 4.8 addresses socioeconomic impacts and benefits, including taxes that NorthernStar may pay to local jurisdictions.

SA1-26 See our response to comment SA3-9.

SA1-27 The Executive Summary is meant to be very brief and cannot discuss every topic that is covered in detail in the body of the EIS. Forest fires are discussed in section 4.0.

SA1-28 We only summarize the most important conclusions from our EIS in the executive summary.

SA1-29 The referenced bulleted items are taken from the Coast Guard's WSR, which does not include a discussion of the Oregon Department of Forestry or other specific resources relative to the need to augment shore side firefighting capabilities.

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SA1-30 Purpose and Need is too general to be useful. The primary assertions are related to market demand and unsupported forecasts. Conclusions are based on assumptions that are not supported by evidence or analysis. DEIS should include information about regional or national energy infrastructure guidance or any planning to support a demonstrated need. Also, add an assessment of system capacity or potential to meet need through FERC approved projects that have not yet been constructed. More rigorous analysis is needed to support Purpose and Need conclusions.

Section 1.3.11 Other State Permits and Approvals (p. 1-11)

SA1-31 Paragraph 5 states "Any state or local permits issued with respect to jurisdictional facilities must be consistent with the conditions of any Certificate the FERC may issue." This statement is confusing because it is not clear how a certificate could even be issued if a state agency were to find that a needed resource was not available, or further use was prohibited or limited. This statement does not raise a particular issue at this time.

The FERC needs to consult with state agency experts prior to issuing any Certificate in order to preserve and protect valuable natural resources. The FERC cannot expect a state to make available resources in violation of its own rules and law. The State of Oregon has an established process under EFSEC that utilizes these agencies knowledge and expertise to site and certify energy projects. That process structure needs to be incorporated into the FERC siting process for LNG.

Sec 1.3.11, (p. 1-11)

SA1-32 State permits. All "forest operations" must comply with Forest Practices Act. Oregon Administrative Rules include notification of harvest, harvest plans, protection against wildfire, etc. (ODF)

Section 1.3.11, (p. 1-11 – 1-12)

SA1-33 State Approvals. Per ORS 509.585 and OAR 635-412-0020, fish passage approval from Oregon Department of Fish and Wildlife is required for stream crossings. The DEIS does not mention the need for approval by ODFW for pipeline crossings, potential lateral crossings, or other road crossings (e.g., Hunt Creek Bridge). Even though the pipeline will be placed beneath streams, it fully crosses them and has the potential to be an artificial obstruction if exposed through stream grade changes. The final EIS should include a condition requiring ODFW approval, prior to issuance of the Joint 404/Removal Fill permit, for all stream crossings. (ODFW)

Section 1.3.11, (p.1-12)

Removal-Fill Law Requirements. Required proprietary authorizations need to be indicated in the DEIS.

SA1-34 Add a more detailed justification on how the proposed project's purpose and need is the "best use of the water resources of this state" and within the public need.
Project will be reviewed per OAR141-085-0025, -0027, 0029, -0031, -0115 *et seq.* (mitigation) and ORS 196.825.

Per OAR 141-085-0029(3), "the Department must determine that the proposed removal-fill activity will not be inconsistent with the protection, conservation and best use of the water

SA1-30 We have revised our discussion of purpose and need in section 1.0.

SA1-31 See our responses to comments PM06-94 and FA2-22. Table 1.3-1 lists the major federal, state, and local codes; ordinances; statutes; rules; regulations; and permits that would apply to the project. The Bradwood Landing Project is not being reviewed or authorized by the EFSEC. Under the EPAAct 2005, the FERC has sole authority to site onshore LNG terminals, and we review applications according to our regulations.

SA1-32 The Forest Practices Act has been added to table 1.3-4.

SA1-33 Fish passage approval from ODFW for stream crossings has been added to table 1.3-4.

SA1-34 We have expanded the discussion of the project purpose and need in section 1.1.

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SA1-34
cont'd resources of this state, and would not reasonably interfere with the paramount public policy of this state to preserve the use of its waters for navigation, fish and public recreation".
Removal-Permit permit will be contingent upon receiving all other local, state and federal authorizations and approvals.

Section 1.3.11, (p. 1-12) General Comments

SA1-35 **Removal-Fill Law/Compensatory Mitigation Requirements.** Compensatory mitigation is required for projects within both wetlands and waters of the state. Compensatory wetland mitigation (OAR141-085-0121, -0126, -0136, -0141, -0151), Compensatory mitigation (OAR141-085-0115) and mitigation for temporary impacts (OAR 141-085-0171) are needed.
Per OAR 141-085-0121 (4), for projects over 0.2 acres, on-site Compensatory wetland mitigation first has to be considered. Compensatory mitigation is also required for impacts to water resources per OAR 141-085-0115. There is not a clear compensatory mitigation plan for impacts from dredging or wharf construction activities that show an increase in function to offset impacts.
Complete compensatory wetland, compensatory non-wetland and temporary impacts mitigation plans are needed prior to issuing a Removal-Fill permit.

Section 1.4. Public Review and Comment, (p. 1-16)

SA1-36 **Spill contingency planning.** Need to add the State of Oregon requirement for preparation of vessel and facility spill contingency planning requirements. ORS 468B.300 *et seq.*, amended by 2007 Legislature, requires Oregon DEQ review and approval of LNG vessel and facility spill contingency plans.
Note that DEQ will need to amend existing spill contingency planning requirements to specify plan submittal requirements for LNG facilities and vessels. Plan approval is required prior to any delivery of LNG to Bradwood facility. (DEQ)

Section 2.0 DESCRIPTION OF PROPOSED ACTION

Section 2.1.1.5, Ballast and Cooling Water (p. 2-6)

SA1-37 With regard to obtaining water for ballast and cooling for LNG ships, Bradwood Landing has indicated its intent to apply for a water right for a fixed, on-shore or on-dock diversion system. If Bradwood does not apply for a water right for ballast and cooling, the state urges Bradwood to consult with OWRD in the near future to assure that water appropriation does not cause injury to existing uses or over-appropriation of the water resource. Wells appropriating ground water used for ballast and cooling must comply with OWRD's statutes and rules governing well construction. The state urges FERC to require a funding agreement for consultation with OWRD on water rights issues. (OWRD)

Section 2.1.1.7, Page 2-7

SA1-38 **Fire Protection.** Water used for actual firefighting is an exempt use of water and does not require a permit. Testing of firefighting systems does require a permit.
Add a statement that use of water for actual firefighting is an exempt use and a permit is not required, while testing of a firefighting system does require a permit, for which an application has already been submitted. This should be clarified prior to any FERC certification. (OWRD)

SA1-35 As described in section 2.1.5, NorthernStar is currently revising its Compensatory Mitigation Plan based on input from agencies and stakeholders through site visits in both Oregon and Washington and through comments on the draft EIS and other comment periods associated with permits required for the project. However, because the plan has not been finalized, we have recommended that NorthernStar continue to consult with the COE, NMFS, FWS, ODFW, ODSL, WDE, and other appropriate agencies to finalize its Compensatory Mitigation Plan. See also the response to comment FA2-10.

SA1-36 The spill response plan has been added to table 4.6.2-1 as a minimization measure.

SA1-37 Wells would not be used as a primary or alternative source of water for vessel ballast water or engine cooling water.

SA1-38 We revised the EIS.

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2.1.3.6 Railroad Relocation (p.2-25)

2.4.1.1 Railroad Line Realignment (p. 2-41)

- SA1-39 Railroad Relocation description is not adequate. The document should provide information about the environmental effects of this project element. The description should address potential for impacts based on potential for resumed service. (DSL)
- SA1-40 **Section 2.1.3.1, Maneuvering Area and Berth (p.2-13)**
Sections 2.4.1.2, 2.4.1.3, Maneuvering Area and Ship Berth (p. 2-42)
Total Project Impacts within Wetlands/Waters. Per OAR 141-085-0029(4 and 5), "the Department will issue the practicable alternative with the least adverse effects." Alternative site designs and layouts with a smaller footprint are not discussed in adequate detail as to why the chosen alternative layout is the most practicable with least adverse effects.
Need more discussion on "possible future expansion". Add language that indicates whether future expansion will include the avoided wetland area. (DSL)
- Alternative wharf designs and footprints. (See additional discussion of alternatives within Compensatory Wetlands Mitigation (CWM) plan, Appendix G)*
- SA1-41 **Lack of analysis as to why in-water disposal is not a "practicable alternative".** Identify the sites for the maintenance dredging.
- SA1-42 DSL recommends that project impacts listed within the Removal-Fill permit application provide more specific discussion as to how each element of the proposed project represents the practicable alternative with the least impacts to the aquatic resources.
Figures documenting impacts in waters should include total impacts area of wharf and pilings.
- SA1-43 **Sec. 2.1.6, Palomar Pipeline (p. 2-28)**
Palomar pipeline is addressed under section 2, "proposed action" but not analyzed in section 4, so then it seems it must not be a part of the proposed action.
If the Palomar line is part of the proposed action as is suggested by its mention in section 2.0, then ODF would have a substantially greater level of concern and would expect a suite of issues related to State Forest lands be analyzed in section 4 of the DEIS. (ODF)
- SA1-44 **Section 2.3.3, Pipeline and Associated Aboveground Facilities (p. 2-35)**
Permanent maintenance corridor: DEIS states that the corridor will be 50 feet wide, but on Page E-3 it says 30 feet, section 4.4.2 also says 30 feet. Please revise for consistency.
- SA1-45 **Section 2.4 Construction Procedures**
Pipelines. If the Palomar line is listed under Section 2 as a proposed action, then its route and construction specifics should be addressed including the private and state forest ownership it would cross.
1. **Dredging.** No new moorages have been proposed in Oregon that approach the scale of impact for the proposed Bradwood Landing project. Under Clean Water Act 401 Certification, DEQ has not been asked to review a project with in-water and wetland impacts of this magnitude in the history of the 401 Certification Program. The project proposes a deepening by about -10 feet in shallow water habitat, over 58 acres in-water, adjacent to the 600 foot-wide federal navigation channel which is slated for deepening

- SA1-39 We disagree. The EIS presents a more than adequate description of the proposed railroad relocation and an analysis of the potential environmental impacts associated with that action. See sections 2.1.3.6, 2.4.1.1, 4.3.2.3, and 4.8.2.7.
- SA1-40 The proposed action is the site layout with the smallest footprint because a smaller footprint was not feasible. See also our response to FA2-14.
- SA1-41 The disposal site for the material removed during maintenance dredging is uncertain at this time. The material would either go to the Wahkiakum County Sand Pit site, if a permit is obtained by Wahkiakum County, or to another approved disposal site.
- SA1-42 We consider the proposed project, as modified by our recommended conditions, to be the preferred alternative. An analysis of alternatives is provided in section 3. ODSL is responsible for reviewing NorthernStar's removal and fill permit application on its own merits, under state regulations.
- SA1-43 We agree that the description of the Palomar pipeline project should not have been placed under the proposed action. The discussion of the Palomar pipeline project has been moved from section 2.1.6 to section 3.1.2.2 and revised.
- SA1-44 The EIS has been revised to reflect 50 feet as the permanent right-of-way corridor width.
- SA1-45 See our response to comment SA1-43. Construction specifics including the private and state forest ownership crossed by the Palomar pipeline will be addressed in the EIS for the Palomar pipeline.

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(from -40 feet to approximately -51 feet, including overdredge), as well as over 30 miles of new pipeline to connect at multiple delivery points with existing pipelines. Initial dredging of the turning basin and berth at this single river mile will remove approximately 700,000 cubic yards (cy), which is equal to about 1/1000 of the total volume projected for Columbia River channel deepening project over about 190 river miles and tributary mouths.

- SA1-46 | a. Impacts from the combined actions of this dredging of 58 acres adjacent to the federal navigation channel and deepening of that channel have not been analyzed by the applicant. It is possible that dredging a large area adjacent to the channel will cause the channel to shift, and this needs to be thoroughly evaluated and addressed.
- SA1-47 | i. Further, this project is dependent on channel deepening occurring at this location and being maintained at new depths indefinitely, although funding and renewed 401 Certifications (from Oregon and Washington) for the United States Army Corps of Engineers (Corps) to complete channel deepening and maintenance have not yet been issued.
- SA1-48 | ii. Channel deepening studies by the Corps have analyzed side slope sloughing and bank erosion as a result of deepening. These impacts must be looked at in the context of the berth and turning basin dredging as well as in relation to channel deepening. Sediment transport models have been used by the applicant to look at some aspects of the proposal, but these models are not well understood, require subjective interpretation as to predictions, and may lead to conclusions contrary to those found by the Corps initiated modeling and studies.
- SA1-49 | iii. Although in-stream sediments proposed for removal have been tested for contaminants, bank materials which may be eroded inadvertently have not been tested. No information is provided as to the historical and current pesticide and fertilizer applications in areas potentially susceptible to erosion and which have been exposed to agricultural or silvicultural practices. Inadequate analysis of bank stability during dynamic adjustment of the river to dredging could introduce bioavailable toxics to the water column and sediments that were previously tied up in upland material. Precaution in this regard is particularly important as data is scarce and implications are just beginning to be studied through the initiatives of EPA's and DEQ's toxics reduction goals in the high priority Columbia River system.
- SA1-50 | iv. Additionally, stability of the former log pond at various stages of fill has not been analyzed with regard to dynamic changes to the river induced by dredging at the berth/turning basin and for channel deepening. Side slope sloughing in-stream caused by dredging could result in bank failure, which may release dredged sediment to fill the former log pond. The DEIS needs to thoroughly evaluate and address the impacts to the stream and habitat from a sudden release of up to 300,000 cy of sediment under this potential scenario.
- SA1-51 | b. Impacts to the hydrodynamic geomorphic changes in the river, both upstream and downstream, have not been fully analyzed by the applicant. These may contribute

- SA1-46 | Maintenance dredging of the navigation channel would maintain the channel position.
- SA1-47 | The channel deepening project is being handled by the COE; it is not an activity regulated by the FERC.
- SA1-48 | See our response to comment IND82-3.
- SA1-49 | There is no indication of heavy pesticide or fertilizer use, such as would be typical of an agricultural setting, at the Bradwood site based on available historic information. Significant bank erosion at the LNG terminal is not anticipated; however, if it were to start occurring, mitigation measures would be required to stabilize the banks. Therefore, we do not believe that sampling and analysis of bank materials is warranted.
- SA1-50 | The log pond is intended to be filled by sediment.
- SA1-51 | See our responses to comments IND82-3, PM3-18, and IND82-5.

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- SA1-51 cont'd
- SA1-52
- SA1-53
- SA1-54
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- to unacceptable levels of erosion (banks on either side and around multiple in-stream islands), introduction of toxics to the waterway, habitat loss, and wetlands loss – all of which reduce water quality.
- c. DEQ does not have the technical capability to analyze fluvial geomorphic changes induced by the proposed project and how these will impact water quality. Initial review of the modeling presented raises questions about the appropriateness of the models used (e.g., why a 2-D model was used rather than a 3-D model which is available, lack of a physical basis for models used) and their predictive abilities given average results and highly complex relationships between erosion, sediment transport and deposition.
- i. This work must be contracted out by DEQ and management of the contractor coordinated internally by DEQ staff representing several programs to determine overall impacts on water quality.
 - ii. Additionally, there is no state or federal precedent to refer to for reviewing a project of this scale. DEQ will likely require the full time allowed for evaluation under the Clean Water Act for 401 water quality certification (365 days) of the proposed project.
2. Timing and Duration
- a. Dredging is proposed to occur non-stop (24 hours per day, 7 days per week) for 2-3 months. No other proposal for dredging in the Columbia has operated 24-hours per day, 7 days per week for multiple months. Impacts to 13 listed salmonid species/ESUs, sturgeon (which are proposed for listing), resident aquatic organisms (mammals, fish, amphibians and reptiles, invertebrates, sediment dwellers), and terrestrial species are not fully identified or known based on non-stop action over this duration. Potentially debilitating impacts to these species include noise, continuous light, suspension of sediment, turbidity, loss of salmonid habitat and ability to rest or avoid predation, and potential attractant for sturgeon to a dangerous construction zone.
 - b. Pile driving and other in-water activities (with similar impacts as dredging) may occur simultaneously with dredging, dredge disposal, and upland construction. The cumulative effects of these actions on water quality “beneficial uses” (particularly listed salmonids, which are the most sensitive beneficial use) have not been analyzed or accounted for.
3. Disposal of dredged material. The project proposes to dispose of dredged material either nearshore, in-stream, or use the material as fill on the terminal site, both after dewatering the materials back into the Columbia River. This discharge of return water to the Columbia may create high levels of suspended solids and turbidity in violation of water quality standards. In addition, accomplishing dewatering for use as fill on-site is proposed at the expense of the existing former log pond, which is currently connected to the mainstem Columbia and functions as a wetland and off-channel habitat for fish. Nearshore placement of dredged materials on Puget Island is at a currently eroding site. No analysis is offered as to erosion acceleration at this location due to the dynamic adjustment of the river in response to dredging. This may lead to a perpetual disturbance of the area during cycles of continual placement and erosion, as well as uncertainty of the fate of eroding material. It is possible that material will be deposited in the navigation

SA1-52 The EIS discuss studies undertaken to assess water quality and channel flow as a result of the dredging to create the turning basin at the Bradwood Landing terminal.

SA1-53 Potential impacts on aquatic resources and federally listed salmonids due to dredging are discussed in sections 4.5.2.1 and 4.6.2.2, respectively.

SA1-54 Dredging would not occur concurrently with other in-water activities associated with construction of the LNG terminal. Depending on the construction schedule, some in-water activities may occur simultaneously with upland construction activities at the LNG terminal site; however, NorthernStar would implement BMPs to protect water quality. Therefore, the additive impacts of these activities on water quality are expected to be short term and minor. Impacts of in-water construction activities on aquatic species are discussed in more detail in section 4.5.2.1. Impacts on listed salmonids in particular are discussed in detail in section 4.6.2. We are currently revising our BA and EFH Assessment in compliance with section 7 of the ESA and have recommended that NorthernStar not begin construction until formal consultation with the NMFS is completed.

SA1-55 As described in section 4.3.2.3, water removed from the dredged material is expected to infiltrate into the ground. During rain events, the decant would be routed to a holding pond. Compensatory mitigation is proposed for the unavoidable loss of the log pond. NorthernStar completed a modeling study of the impacts of dredging. These results are summarized in section 4.2.2.2.

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SA1-55
cont'd

channel, resulting in an increased need for maintenance dredging, and these issues need to be thoroughly analyzed and addressed.

SA1-56

4. On-going maintenance dredging. Continual disturbance of the area will occur for the life of the LNG facility, every 2-4 years to maintain adequate depth by removing approximately 80,000 cy and disposing the material at Puget Island, which may be continually eroding due to the dredging. Another comparison of scope of this project is Oregon's largest port facilities at the Port of Portland: The Port of Portland maintains five berth areas at Terminal 6 on the Columbia River at the confluence with the Willamette River (a much larger system than the Clifton Channel where Bradwood is proposed); all five Port of Portland T-6 berths span about 1.5 river miles, are dredged to approximately -51 ft and require removal of only about 2,000 cy to 40,000 cy for maintenance on a similar time frame as the proposed Bradwood Landing project, which is projected to require approximately 80,000 cy removal.

SA1-57

5. Proposed equipment may be inadequate. All dredging is proposed to be accomplished via hydraulic suction. However, 12 of 31 cores planned for sediment sampling to depth (-43 ft) hit refusal before reaching proposed depth. The contractor's assumption was that obstructions were caused by dense gravel layers, wood and densely packed sand comprising an identified layer of consolidated sediments. No information is offered as to the ability of the proposed hydraulic equipment to penetrate the consolidated materials. Procedures proposed by the Corps for removing obstructions in channel deepening include using a clam shell bucket and blasting. Both of these methods may result in significantly deeper disturbance and greater impact to remove erratic materials. Further analysis and justification is required for such contingency measures. (DEQ)

SA1-58

Section 2.4.1.1, Site Preparation (p. 2-41)

Blasting. No statement is included that the applicant and the construction contractor will be aware of sensitive wildlife sites located near blasting. ODFW recommends that the applicant and the applicant's consultants/contractors consult with ODFW, prior to blasting, regarding sensitive wildlife site locations and timing of blasting in order to minimize impacts to sensitive wildlife. (ODFW)

Section 2.4.1.4, (p. 2-43)

Hydraulic Testing of the LNG Storage Tanks. Water Resources discusses its issues with use of water for testing in Sections 4 and 5. (OWRD)

Section 2.4.1.4, (p. 2-44)

Hydraulic/Pneumatic testing of Piping Systems. Water Resources discusses its issues with use of water for testing in Sections 4 and 5. (OWRD)

Section 2.4.2.1, (p. 2-47)

General Pipeline Construction Techniques, Hydrostatic Testing. Water Resources discusses its issues with use of water for testing in Sections 4 and 5. (OWRD)

SA1-59

Section 2.4.2.1, page 2-44

General Pipeline Construction Techniques. No statement is included that construction will occur after review of sensitive wildlife sites. ODFW recommends that the applicant and consultants

SA1-56

The EIS discusses maintenance dredging anticipated during operation of the Bradwood Landing LNG import terminal.

SA1-57

Hydraulic suction dredging would be adequate for removing consolidated sediments identified during sediment sampling by core refusal. The vibracore sampler, which met refusal, is not very robust. The other sampler that was used for the project did not have difficulty penetrating any of the sediments.

SA1-58

Section 4.5.2.3 has been revised to include a recommendation that NorthernStar consult with the NMFS, FWS, ODFW, and other appropriate agencies in developing its Blasting Management Plan.

SA1-59

Based on the analysis provided in the EIS, we believe that with the implementation of our recommendations, impacts on sensitive wildlife sites in the vicinity of the proposed project would be temporary and minor. In addition, potential impacts on federally listed species will be analyzed in detail during formal consultation with the NMFS and FWS. Therefore, we do not believe that additional consultation between NorthernStar and the ODFW regarding potential impacts on sensitive wildlife sites is warranted.

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consult with ODFW on sensitive wildlife sites near the Liquefied Natural Gas (LNG) terminal and pipeline. (ODFW)

Section 2.4.2.2, Special Pipeline Construction Techniques (p. 2-49)

Section 4.4.1-3, Pipeline Facilities (pp. 4-98 - 4-105)

SA1-60 Temporary Impacts. Conversion of wetlands is not a temporary impact, i.e. Palustrine Forested wetland converted to Palustrine Emergent.

If there is a conversion of wetland types, this is a permanent wetland impact and Compensatory Wetlands Mitigation is needed. Clear explanation if the conversion of 5.0 acres of Palustrine Forested wetland is accounted for within the Compensatory Wetlands Mitigation plan. (Proposed temporary impacts at terminal is 15 acres).

Oregon has recommend that adequate CWM be identified. If Palustrine Forested wetland is being converted, the mitigation needs to be "in-kind" replacement. More detail is needed on what the width of the maintained right-of-way will be along pipeline. This is not clear if it will be 10 feet for all wetland crossings.

Authorization will be conditioned to require pipeline right-of-way restoration activities for the temporary impacts to wetlands be monitored for at least five years.

Finalized and complete Compensatory Wetlands Mitigation and Compensatory Mitigation Plans are required prior to any authorization from DSL. (DSL)

Section 2.4.2.2, Special Pipeline Construction Techniques (p. 2-53)

SA1-61 Roads and Railroads. Five foot depth is insufficient along or under any State Highway, or for any pipes within the Potential Impact Radius. ODOT needs a minimum of 10 foot depth below bottom of ditch or below surface grade to protect the integrity of the State Highway System.

ODOT has the responsibility to preserve the operational safety, integrity, and function of the highway facility. ODOT must also ensure that improvements to the highway system can be accomplished without undue impacts or damage to utilities within the highway right-of-way.

The developer must obtain a permit from ODOT to work within the highway right-of-way. The developer shall meet the requirements in Oregon Administrative Rule 734 Division 55 through special provisions.

The following conditions must be fulfilled before a permit to work in ODOT right-of-way will be issued.

- Developer must notify and work directly with ODOT where the proposed location of the pipeline is shown to be within the Potential Impact Radius (PIR) of any state highway. The PIR is based on minimum federal safety standards found in 49 CFR Part 192.
- Developer shall provide ODOT with a set of plans which include, but not limited to, detailed pipeline route maps and construction staging plans. Developer will work with ODOT to develop design standards for all pipes within the PIR of a state highway. Design requirements include the following:
- Minimum of 10 feet of cover from the top of the pipe will be the norm unless special acceptance of a lesser amount is authorized for a specific reason. A minimum of 10 feet of cover should be used as the standard within ODOT right-of-way.
- All pipeline crossings of the highway shall be properly cased or for uncased pipeline crossings, a substantial increase in the pipeline design standards will be required
- In no instance shall the pipeline attach to or be suspended within highway bridge structures.

SA1-60 As stated in section 4.0, FERC considers resources requiring more than 3 years to recover from construction activities to be a long-term impact. Palustrine forested wetlands within temporarily impacted areas would return to their preconstruction condition during the life of the project (approximately 40 years); therefore, although impacts on palustrine forested wetlands are considered long term, they are not considered a permanent impact. Conversion of forested wetlands to emergent wetlands would be mitigated through the implementation of NorthernStar's Compensatory Mitigation Plan.

Section 4.4.1.3 discusses wetland monitoring along the right-of-way. In addition, we have recommended that NorthernStar consult with appropriate federal and state resource agencies to develop a Waterbody and Wetland Construction and Mitigation Procedures Plan that includes measures to appropriately monitor the success of revegetation.

Right-of-way widths that would be maintained within wetlands and uplands are described in detail in sections 4.4.1.3 and 4.4.2.3, respectively.

See also our response to comment SA1-16.

SA1-61 Table 1.3-1 lists the major federal, state, and local codes, ordinances, statutes, rules, regulations, and permits that would apply to the project. NorthernStar would apply for permits to cross state and county roadways and adhere to the conditions of these permits. Section 2.4.2.1 has been revised.

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SA1-61
cont'd

- Highway access to all pipeline surface structures and assemblies such as, but not limited to, gate valves and monitoring equipment, shall comply with Oregon Administrative Rule 734 Division 51. A preferred location for pipeline surface structures and assemblies is to be placed outside highway right-of-way.
- Annually, updated emergency contact information (names and phone numbers) shall be delivered to each District Manager in which the pipeline may affect highway operations and maintenance activities.

It is the sole responsibility of the developer to ensure that all required environmental statutes and codes are completely met. The developer is responsible to secure all state, federal and local permits and clearances as required under federal, state and local statutes or codes for all areas within ODOT right-of-way that are impacted by the development. (ODOT Region 2)

Section 2.4.2.2, Special Pipeline Construction Techniques (pp. 2-49 – 2-51)
Waterbody Crossings, paragraph 2.

SA1-62

(1) In discussing the flume and pump methods for stream crossings, no mention of fish salvage actions or reference to a fish salvage plan is made. The dam and pump method would also require proper fish screening. Since there is a high likelihood that the pipeline crosses fish-bearing streams with the potential for stranding of fish, the DEIS needs to include a fish salvage plan, or identify where/if one is available.

SA1-63

(2) This section discusses cleaning and inspection of flume pipe for dirt, grease, oil, and other pollutants. Consideration needs to be given to inspection of flume and equipment for invasive mussels. It is unknown if invasive mussels are present in the water bodies that are crossed, however, they are present in the Youngs Bay watershed downstream. In light of unknown distribution, a proactive approach for control of invasive species should be taken. ODFW recommends that equipment and materials used in and moved between waterways be inspected and cleaned (i.e., power wash those portions in contact with stream substrate). This recommendation should be added either in this section or as a part of the Environmental Compliance Inspection section (2.6). (ODFW)

Section 2.4.2.2, (p. 2-55)

SA1-64

Blasting. No statement is included that the applicant and the construction contractor will be aware of sensitive wildlife sites located near blasting. ODFW recommends that the applicant and the applicant's consultants/contractors consult with ODFW on sensitive wildlife sites and incorporate impact minimization measures. (ODFW)

Section 2.7.3, Pipeline and Associated Aboveground Facilities (p. 2-59 – 2-60)

SA1-65

Maintenance of Pipeline. Per ORS 509.610, pipeline crossings must be maintained as approved. This section should mention that exposure of the pipeline in streams will be monitored and addressed as a potential maintenance need. (ODFW)

Sec. 2.8.2.2 Emergency Response Procedures

SA1-66

Emergency response plan. Plan should include coordination with ODF on wildfire issues.(ODF)

Sections 2.1.5, Wetland and Habitat Mitigation Sites; 2.2.3, Salmon Enhancement Initiative; 4.6.2, Impacts and Mitigation; and 5.2 FERC's Staff Recommended Mitigation) Mitigation

- SA1-62 As described in section 4.2.3 of the Waterbody and Wetland Construction and Mitigation Procedures Plan, screens would be installed on pump suction hoses to prevent the entrainment of aquatic species in waterbodies crossed using the dam and pump method. NorthernStar filed its Work Area Isolation and Fish Salvage Plan for the Bradwood Landing pipeline as Appendix K of its JPA on November 22, 2006. This document is available for viewing by the public on the FERC's Internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e., CP06-365), and putting in the proper date range.
- SA1-63 Section 4.5.3.1 has been revised to include a recommendation that NorthernStar's final Waterbody and Wetland Construction and Mitigation Procedures Plan include measures to prevent the spread of invasive species due to construction activities within waterbodies.
- SA1-64 See our response to comment SA1-58.
- SA1-65 The pipeline would be installed and maintained in accordance with DOT standards, as explained in section 4.11.9. Pipeline crossings of waterbodies are discussed in section 4.3.2.4.
- SA1-66 NorthernStar has filed a draft ERP. It will be revised after review by the FERC, and other appropriate federal, state, and local agencies.

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- K-447
- SA1-67 1. The majority of mitigation proposed (for both in-water and wetlands impacts) will occur off-site at an existing island 14 miles downstream of the proposed Bradwood Landing project. On-site mitigation is proposed by preserving existing wetlands and riparian area at Hunt Creek. All mitigation proposed would preserve and enhance existing areas which already provide functional water quality and habitat benefits. Although the targeted areas may function better if mitigation actions are successful, the project will still result in a permanent loss of 33 acres of wetland and 58 acres of in-stream areas, as well as temporal losses from an additional 98 acres of temporary wetland impacts. Not only is this contrary to both the intent and requirements for mitigation to fulfill permit requirements under the Clean Water Act, but it is of additional significance under the recent EPA elevation of the Columbia River to a national priority. EPA's strategic targets are to protect and restore 13,000 acres of wetlands and 3,000 acres of upland habitat, clean up toxic sediments, and reduce toxics concentrations in the water column and in fish tissues.
- SA1-68 2. Proposed off-site mitigation is too distant and not representative of all the impacts of the proposed Bradwood Landing project. The DEIS is inconsistent in some analysis related to this point. For example, the applicant notes that the closest other development in the area (12 miles away) which may contribute to cumulative impacts is too far away to have an effect. Yet off-site mitigation for impacts of the project is proposed at an island 14 miles from the terminal site and up to 30+ miles from the pipeline impacts. This proposed mitigation would not compensate for impacts at the project site. Additionally, any water quality and habitat benefits will be isolated to an area downstream of the impacts and at the lowest point in the watershed. Impacts are proposed in uplands, forested wetlands, tidal wetlands, and in-stream, and these will have cascading impacts to water quality and species in all levels of the watershed. Mitigation is proposed at only one level and will not fully replace the lost functions over the diversity and wide variety of areas affected.
- SA1-69 3. Upland impacts – Associated with the pipeline and powerline corridors will be the permanent removal of mature trees aging 20-80 years old, as well as old growth stands and other vegetation. This could potentially contribute to reduced infiltration and additional erosion leading to water quality problems nearby. This is also contrary to EPA's strategic target to protect and restore 3,000 acres of upland habitat in the Columbia River basin. These significant impacts will not be mitigated along the corridors, nor will mature trees be replaced, resulting in spatial and temporal losses which have not been addressed.
- Other Water Impacts
- SA1-70 1. Groundwater – The applicant has provided extensive information as to the location and capacity of groundwater which would serve the intended industrial uses. However, no information is provided as to potential impacts to groundwater as a result of operation of the proposed facility. In order to insure that infiltration of sanitary waste and stormwater would not pollute groundwater, details on the depth to groundwater, aquifer type, and infiltration media are required. DEQ permits for on-site septic proposals must be obtained. Adequate treatment of stormwater to remove pollutants is required – infiltration through sand alone for a short distance to shallow groundwater is not adequate to insure that groundwater will not receive pollutants. Withdrawal of large amounts of groundwater (approximately 12 million gallons for construction and 1 million gallons

SA1-67 See our response to comment FA2-10.

SA1-68 Adequacy of the Compensatory Mitigation Plan is discussed in the response to comment FA2-10. Directions for accessing NorthernStar's Compensatory Mitigation Plan via the eLibrary can be found in the response to comment PM6-11.

The FERC staff does not feel that the EIS is inconsistent in differentiating what is considered a cumulative impact and what can be considered mitigation for project impacts. Cumulative impacts are defined as those impacts resulting from other projects that are constructed at or close to the same time. The distance from the project within which cumulative impacts may occur varies based on the environmental resource being considered. For example, as described in section 4.12, impacts on geology and soils from construction activities are highly localized; therefore, cumulative impacts on near-surface geology and soils would only occur if other projects are constructed in the immediate vicinity of the proposed project. In contrast, cumulative impacts on federally or state-listed species could result if other projects would affect the same species or their habitats; therefore, cumulative impacts could occur within a much larger area. Alternatively, the driving factor in selecting a site for mitigation is the ability of a given site to replace functions that would be lost due to the proposed project. NorthernStar's rationale for selecting the proposed mitigation sites is described in detail in its Preliminary Engineering Design Draft Mitigation Plan.

SA1-69 Potential impacts on water quality due to clearing of trees and vegetation are discussed in section 4.3.2.4. Although operation of the pipeline and power line would result in permanent impacts on 125.3 acres of upland vegetation, it is important to note that all upland areas would be revegetated as described in sections 4.4.2.2 and 4.2.2.3. Old-growth forest would not be cleared as a result of the Bradwood Landing Project.

SA1-70 Groundwater characteristics at the terminal site, impacts and mitigation of water discharged to the ground, and associated permits are discussed in section 4.3.1.3. Based on the characteristics of the aquifer in which the on-site well would be completed and its location, we do not believe the volumes of water proposed to be used during construction and operation would adversely impact the aquifer, Hunt Creek, or the Columbia River (see section 4.3.1.3).

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SA1-70
cont'd
SA1-71

annually) from below sand may result in subsidence, prohibit recharge of the Columbia River or Hunt Creek, overdraw a confined aquifer, or result in a cone of depression drawing potential pollutants into the groundwater or streams.

2. Oregon Water Resources Department (OWRD) licenses for water withdrawals from surface waters and groundwater – Though some licenses may have been applied for from OWRD (groundwater withdrawals for pipeline hydrostatic testing and terminal construction), it is unclear whether these have been or will be granted or if surface water withdrawals (75 million gallons for terminal construction and ongoing withdrawals for fire suppression system) have been applied for. Further, it is unclear how review of these withdrawals will be coordinated with the Oregon Department of Fish and Wildlife, DEQ and others as needed to evaluate impacts and integrate permit requirements (DEQ National Pollution Discharge Elimination System (NPDES) or Water Pollution Control Facility (WPCF) permits are needed for the discharge of water withdrawn) and TMDL considerations.

SA1-72

3. Post-Construction Stormwater Management Plan – The plan provided is inadequate. Although a conceptual plan is presented, critical details are not provided which are necessary to determine that pollutant removal will be accomplished to the maximum extent practicable such that reasonably expected pollutants (sediment, metals, hydrocarbons, nutrients, etc.) in runoff from all associated impervious surfaces will not be discharged to waters of the state. Lacking information includes specifications for proposed facilities such as size of ponds, dimensions (length, width, side slope, depth) of swales, vegetative components, filtration media, distance of overland flow through vegetation, gradient of flow-paths, and chronology of a train of treatment features which addresses each reasonably expected pollutant. Additionally, there are inconsistencies with the conceptual plan, including proposed infiltration of all stormwater runoff despite compaction of fill areas for seismic stability for the facility. Finally, merging conveyance of runoff with spill containment/catchment facilities is not permissible. Minimizing potential pollutants to stormwater through separate conveyance from potential industrial spills is considered a best management practice.

SA1-73

4. National Pollution Discharge Elimination System (NPDES) permits - A recent ruling by the 9th Circuit Court may be a critical factor in deciding whether or not DEQ can issue a NPDES permit for the proposed Bradwood Landing facility. The case is *Friends of Pinto Creek et al v. EPA et al*, 504 F3d 1007 (9th Cir. 2007) (filed October 4, 2007). In brief, the 9th Circuit vacated a permit that EPA issued to Carliota Copper Company because the permit allowed discharges of copper into Pinto Creek, which was already exceeding water quality standards for copper. EPA contended that partial remediation of a discharge from another facility would offset the pollution going into Pinto Creek. The court ruled that 1) compliance schedules designed to bring the segment into compliance must be established for existing dischargers before a new permit can be issued, and 2) "there is nothing in the Clean Water Act or the regulation that provides an exception for an offset when the waters remain impaired and the new source is discharging pollution into that impaired water."

For wastewater discharges from the Bradwood Landing facility, temperature will probably be the only issue. Columbia River TMDLs are already in place for dioxin and total dissolved gas, but TMDLs are still needed for temperature, arsenic, DDT, and

SA1-71

Table 1.3-1 lists the major federal, state, and local codes, ordinances, statutes, rules, regulations, and permits that would apply to the project. Coordination of permit review within state agencies is not relevant to the EIS.

SA1-72

NorthernStar's Stormwater Management Plan provides the requested detail and is available via the eLibrary as described in the response to comment PM1-4.

SA1-73

This case is for a different project.

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SA1-73
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Polychlorinated biphenyls (PCBs). Bradwood Landing's NPDES permit application showed non-detect levels for arsenic, but the detection limit was probably too high (this can be easily remedied). EPA is in the lead on developing the Columbia River temperature TMDL, but work has been stalled for several years. Bradwood Landing's NPDES application lists the following three outfalls and maximum expected temperatures: 1) LNG vaporization discharge, 68 °F summer and winter, 2) Firewater system testing, 47 °F winter, 74 °F summer, and 3) Hydrostatic testing, 60 °F winter, 75 °F summer. Outfall 1 would be the ongoing LNG operation discharging 0.2 million gallons per day (MGD). The firewater system would be tested for one hour each week with a maximum flow of 4,400 gallons per minute (GPM). Hydrostatic testing of tanks would occur once during the construction period using 30 million gallons for each of two tanks. Hydrostatic testing of piping would occur once during the construction period. A total of 1.5 million gallons would be discharged in several episodes over a 2 year period.

DEQ's understanding of the *Friends of Pinto Creek* ruling suggests that we could not issue a permit without requiring that temperature water quality standards be met at the end of the pipe before a TMDL was issued. Outfall 1 discharges may not need any cooling according to the application. However, for outfalls 2 and 3, it might be possible and necessary to cool the water before discharge.

SA1-74

5. Ballast water - No analysis is offered as to impacts of reduced water flows for withdrawal of up to 6.3 billion gallons annually of ballast water from the Columbia River at the berthing area. The applicant proposes contract incentives to LNG ships outfitted with appropriate screening to reduce impacts to organisms and recirculating capabilities to address ship cooling issues and prevent additional withdrawals as well as discharges of heated water. However, this is not standard equipment on the existing LNG ships worldwide and no assurance is given that these retrofit measures will be required. The 9th Circuit Court recently ruled that NPDES discharges to a stream cannot be permitted prior to analysis and load allocations being finalized under a TMDL when the stream is limited for a parameter in the discharge. As the Columbia River temperature TMDL has not been completed, there are no load allocations and therefore no discharge of heated water can be allowed.

SA1-75

6. Invasive organisms - No measures are provided to prevent transfer of non-native species from ship hulls, anchors, propeller, incidental ballast, etc., other than rinsing of anchors and chains prior to leaving the port of origin. These measures would not be adequate to remove organisms from the vessel hull, its components or incidental ballast that were acquired at the port of origin or other waters encountered on the journey to Oregon.

SA1-76

7. Railroad Realignment - Hunt Creek is proposed as a mitigation area through preservation. However, realignment of the railroad will position it only 30 feet from the creek, which is an insufficient buffer area to protect water quality. Typical riparian buffers for water quality protection are at least 100 feet of densely vegetated, low gradient buffer area (or wider where slopes are steep). Additionally, no information is provided as to protection of Hunt Creek's water quality from loss of riparian vegetation and inputs of runoff from potentially chemically treated wood railroad ties, sediment and gravel, train related hydrocarbons, metals, etc. Details for protection measures during construction, as well as post-construction stormwater management measures are required. Mitigation for impacts to Hunt Creek resulting from inadequate buffers must be provided,

SA1-74

As described in section 4.5.2.1, water withdrawals associated with operation of the project would average less than 80 cfs. More specifically, water withdrawals for ballast and engine cooling water would occur at a rate of about 95 cfs. This is a small fraction of the average annual mean streamflow of the Columbia River as measured at the Beaver Army Terminal, which is 233,575 cfs. Therefore, although reduced downstream flows as a result of the proposed project are expected, the reduction would not be significant. See also our response to comment PM1-31.

SA1-75

Additional information on the potential for the introduction of invasive species to the lower Columbia River through hull fouling has been added to section 4.5.1.1.

SA1-76

As described in section 4.3.2.3, approximately 2,000 feet the rerouted railroad line would parallel Hunt Creek. For most of this length, the creek and the edge of the railroad right-of-way would be between 50 and 400 feet apart. However, for about 50 feet, the edge of the railroad right-of-way and Hunt Creek would be less than 50 feet apart. NorthernStar's terminal ESC Plan describes measures that would be taken to prevent construction materials and eroded soil from entering Hunt Creek during construction. Section 4.3.2.3 has been revised to include additional information on the potential impacts on water quality from the portion of the railroad realignment that is located within 50 feet of Hunt Creek.

There may be potential for impacts from run-off containing train related hydrocarbons and metals, but a 2-foot-high berm of earth covered with native grass would be constructed between the Hunt Creek oxbow and the railroad tracks; this would buffer impacts on Hunt Creek if the railroad is used temporarily during construction for delivery of materials. The berm would extend for 100 feet centered on the apex of the oxbow. There is currently no traffic on the tracks and the PWRR has no plans to operate trains west of Wauna (Wauna is east of Bradwood). Treated railroad ties would not be used within 100 feet of any wetland or waterway. Adequacy of mitigation is addressed in the response to comment FA2-10. Section 4.3.2.3 has been revised to include this information.

SA1-76
cont'd

and no mitigation credit should be considered for preservation of the creek riparian areas which are, in fact, being impacted.

SA1-77

8. Erosion due to ship wake – The analysis of potential for erosion due to 125 visits per year of ships larger than those that currently access the Columbia is not representative of proposed ship size and makes favorable conclusions based on lack of information. More information is needed to determine the level of potential effects. Corps studies related to channel deepening in the proposed reach have found wake from current ship traffic to be largely responsible for erosion at Puget Island. The DEIS incorrectly identifies speed as the most important influencing factor in ship wake erosion. The Corps studies have found vessel hull shape to be the contributing factor for ship wake erosion with severity dependent on tidal stage during travel. No information on vessel hull shape and tidal stage correlation is provided in the DEIS analysis. Additionally, tug boat wake from multiple boats during berthing and unberthing should be analyzed in combination with wake and propeller wash from the vessels. (DEQ)

Section 3.0 ALTERNATIVES

SA1-78

Alternatives analysis is not supported by adequate information that relates reasonable alternatives to a demonstrated purpose and need. This section of the DEIS should be more detailed and include a set of criteria that includes commonly accepted import terminal requirements and environmental/permit requirements that can be uniformly be applied to all reasonable build and no-build alternatives. There should be a rigorous analysis of alternatives and more consideration of conservation and renewable energy. The analysis of alternatives is too general to be helpful. Other sites proceeding through the FERC process should be more carefully analyzed and the DEIS should provide more guidance about all of the relative advantages and disadvantages of each project. (DLCD)

Section 3.0

Also Section 3.1.6.2, p.3-41, Section 3.1.9, p. 3-52 through 3-58 and Table 3.1.9-1

See applicable comments at DSL Section 2.1.3.1, p.2-13 and Sections 2.4.1.2, 2.4.1.3, p. 2-42. (DSL)

Alternatives Analysis

SA1-79

1. Other potential locations within the region have no impacts from dredging or to wetlands at the terminal site. Despite acknowledging that 58 acres of dredging impacts are the most significant and least well understood environmental impact from the proposal, FERC does not find that options with no dredging or wetland impacts are less environmentally impactful.

SA1-80

2. Tribal nations have expressed concerns with the location of the proposal. Although supportive of LNG in Oregon as a “bridge” energy source to reduce dependence on salmon impacting hydropower, such facilities should not be sited in sensitive estuarine areas such as the Columbia River estuary, though which many declining salmonid species must pass in order to access traditional fishing areas. (DEQ)

Section 3.1.9.2

Dredged Material Placement Alternatives

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SA1-77

See our response to comment FA4-14.

SA1-78

We disagree. The EIS provides adequate information about alternatives. Our analysis discusses the relative advantages and disadvantages of various alternatives. In the beginning of section 3.1 we explain the project objectives and our criteria for evaluating alternatives. We address the no action alternative in section 3.1.1, and discuss conservation and renewable energy alternatives in section 3.1.1.3. See our response to comment SA1-3. The purpose and need for the project is briefly summarized in section 1.1 of the EIS. The Commission Order for this proposal will present a more detailed analysis and conclusion about project need.

SA1-79

It is not true that other potential locations for LNG import terminals in the region would have no impacts from dredging or no impacts on wetlands (see section 3.1.3.4). The proposed Jordan Cove LNG terminal would need to excavate or dredge about 4.3 million cubic yards of material, and its associated sendout pipeline would potentially impact about 406 acres of wetlands. The proposed Oregon LNG terminal would need to dredge about 1.3 million cubic yards of material, and its associated sendout pipeline would cross 11.5 miles of wetlands. The EIS has been revised to explain that NorthernStar intends to dredge about 46 acres within the 58-acre turning basin, producing 700,000 cubic yards of material, the majority, or all, of which would be disposed of on site. Only one of the alternative LNG terminal locations would not require much dredging (Tansy Point). However, that site has no project sponsor, and an LNG terminal at Tansy Point may impact other resources, associated with a higher population density, and a longer sendout pipeline. We have not characterized dredging as “the most significant impact

SA1-80

Section 4.9.3 discloses that Indian tribes have expressed concerns about potential project impacts on the lower Columbia River estuary, federally-listed threatened and endangered salmon species, and tribal fishing rights, due to the proposed location of the LNG import terminal. As explained elsewhere, the project proponent selected the location for its facilities, and the FERC analyzed the environmental impacts the project may have at that location. Our alternatives analysis did not identify another LNG import terminal location that was vastly superior to NorthernStar's location in terms of potential environmental impacts. In fact, several other locations may have greater impacts; especially those projects with longer pipeline routes. However, the FERC usually does not choose between various project locations. If environmental impacts can be mitigated, the FERC could authorize several projects at different locations within the same region, and let the market decide which projects are viable. The EIS for the Bradwood Landing Project discusses the lower Columbia River estuary in section 4.3.2, threatened and endangered salmon species in section 4.6, and tribal fishing rights in section 4.8.1.7.

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SA1-81 Upland placement of dredged sediments. DEQ's Solid Waste Program's comments are on the upland placement of dredged sediments, page 3-53. DEQ has the authority to issue a disposal permit for the disposal of materials that do not meet the definition of clean fill.

The DEIS does not recognize the role that the DEQ Solid Waste Program plays in the approving the disposal of waste that is not clean fill. There is reason to believe that the sediments will not be clean fill and thus subject to DEQ Solid Waste Program regulations.

Missing is a discussion of the process that will be used and the interaction with DEQ's Solid Waste Program if the sediments do not meet the definition of clean fill. Add the following text as a new paragraph to page 3-53, under the first paragraph under the heading "Dredged Material Placement Alternatives."

- The Oregon DEQ Solid Waste Program has the authority to issue a disposal permit for the disposal of materials that do not meet the definition of clean fill. To make this determination, the program looks at analytical results from a totals tests (EPA method 6020), as used for the results shown in table 4.2.2-2) to determine if contaminate levels are above DEQ's screening levels. Table 4.2.2-2 shows levels that appear to be above these screening levels for some constituents. In this case, the project proponents and DEQ will work together to determine options for upland disposal of sediment.
- Suggested deadline for compliance with condition: The project should work with DEQ as soon as practical to determine how sediments will be disposed of. If the dredged materials meet in-water disposal criteria (Sediment Evaluation Framework, Port of Portland criteria, etc.), it is a "clean fill" for upland disposal, and no permit from DEQ's Solid Waste Program is needed. If the method used to determine that sediment meets in-water disposal is a bioassay and/or bioaccumulation test, the sediment may not be appropriate for upland disposal. If it fails in-water disposal criteria but passes screening criteria, it is considered "clean fill" and no Solid Waste Letter of Authorization (SWLA) is needed from DEQ. If the contaminate levels are close to our screening level, more sampling may be required. If sediment fails the screening criteria, a SWLA will be required to dispose of the material on land, except at an approved and permitted landfill. Processing of a SWLA or other permit can take six months, depending upon the associated work load. (DEQ)

Sec 4.0 Environmental Analysis

SA1-82 If Palomar is listed as a component of the proposed action, then there are many issues/effects that could be associated with it that are not analyzed/disclosed (ODF)

Section 4.0

SA1-83 Much of the information in the Environmental Analysis is too general. There are general assertions about project effects, but these conclusions are not tied to environmental data and information. The information on dredging impacts generally discusses alterations in flow, but does not discuss the long term impacts on habitat or species in the vicinity of the project or in the downstream areas of the main navigation channel or Clifton channel. While there is good modeling information, the information needs to be tied to a better analysis of effects on key environmental conditions.

SA1-81 The dredged material would meet the definition of clean fill (see section 4.2.2.2).

SA1-82 See our response to comment SA1-43.

SA1-83 Potential long-term impacts of alterations created by dredging on habitat and species will be discussed in more detail in the FERC's revised BA and EFH assessment.

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SA1-83
cont'd | Have previously asked for additional information about resource effects.

SA1-84 | Information is too general. Need additional detail about habitat impacts of dredging and long term effects of channel modification. (DLCD/OCMP)

Section 4.10, Air Quality and Noise

SA1-85 | • The DEIS summary of Air Quality permitting issues for this facility is adequate. Permitting should be able to proceed when a Land Use Compatibility Statement, the permit application materials, and the appropriate fees are submitted to DEQ.
• In the previous Resource Report for Air Quality, an emissions inventory of temporary and mobile sources was included. There was a change in the sulfur content of the fuel used aboard the LNG tanker ships that was not explained in the DEIS, which significantly decreased the estimated emissions. An explanation of why this change was made would be helpful.

SA1-86 | • Although DEQ does not have the authority to regulate ship emissions in the Columbia River, the emission inventory submitted in the DEIS represents the potential for a very significant risk to residents in the Lower Columbia area. The State of Oregon currently lacks the resources to adequately monitor and analyze ambient conditions in this area, and therefore does not have information to answer questions from citizens about whether or not the area meets National Ambient Air Quality Standards. Of greatest potential concern are emissions of sulfur oxides and nitrogen oxides.

SA1-87 | • The emissions inventory does not contain information on air toxics or hazardous air pollutants, or specifically, diesel particulate matter. All 36 counties in Oregon exceed health benchmarks for diesel particulate matter, including Clatsop County where the proposed Bradwood Landing project would be located. Even though DEQ's air toxics program would not require mitigation at this time, we would encourage Northern Star to voluntarily mitigate its diesel particulate matter emissions including but not limited to:
o installing electrification at the dock to reduce ship hotelling emissions;
o switching to cleaner fuels on all diesel engines;
o installing retrofit devices on all diesel engines; and
o reducing idling for all diesel engines at the facility during construction or operation.
(DEQ)

Section 4.1 GEOLOGY

Global Concerns

SA1-88 | 1. High (severe) geologic hazards. A hazardous facility proposed at the site and the site is potentially subject to severe geologic hazards.

No mention of technical peer review of the submitted detailed geotechnical and seismic reports to ensure technical competency.

Reference to or completion of technical peer review of the detailed geotechnical and seismic reports.

An independent (non-government agency) technical peer review should be performed on the detailed geotechnical and seismic reports to ensure technical competency. Review should be done by qualified and licensed geologists and engineers.(DOGAMI)

SA1-84 | See our response to comment IND82-5.

SA1-85 | The EIS addresses air quality issues in section 4.10.1.

SA1-86 | Emissions of SO₂ from the LNG carriers shown in table 4.10.1-4 have been updated to reflect a fuel sulfur content of 4.5 weight percent, the international sulfur limit, for ship main engines and generators in transit. In addition, clarifying information documenting the basis for the emissions estimates has been added to table 4.10.1-4.

SA1-87 | As documented in table 4.10.1.4 in the final EIS, the annual particulate matter estimated to be emitted from the hotelling LNG carriers is less than 0.5 tpy. Mitigation measures, such as cold ironing were evaluated and were found to not be technically practicable due to limitations in the electrical distribution grid. In addition, internationally flagged LNG carriers in general are not designed to accept shore power and would have to be specially built or retrofitted to accept it.

The diesel engines used during the construction would comply with all state and federal regulations, including the use of cleaner fuels. Additional measures would be employed such as requesting that idling be limited to short durations.

SA1-88 | The preliminary design of the Bradwood Landing LNG facility has accounted for the major geologic hazards at an acceptable level of detail at the current time. See also our response to SA1-4 and LA7-25. The FERC staff intends to ensure that NorthernStar consults with the designated state agencies regarding all aspects of the seismic design and geologic hazard mitigation measures.

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- SA1-89 2. Erroneous technical statements within the DEIS. Erroneous technical statements raise overall concerns about the qualifications of the applicant with respect to technical issues.
No reference to detailed geotechnical and seismic reports (URS reports) on some very complicated geotechnical issues (specific examples are given below). Also erroneous statements which do not match the URS reports.
Reference to detailed geotechnical and seismic reports (URS reports) on some very complicated geotechnical issues. Adequate integration of technical issues into the DEIS.
A technical review of the DEIS by URS and relevant consultants to ensure adequate integration of technical analyses and results. (DOGAMI)
- SA1-90 3. High risk because of the combination of a proposed hazardous facility and the high (severe) geologic hazards. The site has very poor foundation soils, is in a high seismic hazard area, and potentially subject to other severe geologic hazards.
The role of the geotechnical and geologic hazard information and project members appears to be inadequate.
The geotechnical and geologic hazard information has not been fully considered in the DEIS.
Effectively integrate geotechnical/geologic hazard project members into the design, construction, inspection and operations so that the site's severe geologic hazards are mitigated adequately. (DOGAMI)
- Section 4.1.1, Regional Geologic Setting (p.4-2, para, 7)**
- SA1-91 "In recent time, the coastal regions of..." Discussion of vertical deformation rates appear only to consider long-term rates (hundreds of thousands of years) based on geologic studies. Contemporary vertical deformation rates may be different.
- SA1-92 Evaluation of Contemporary vertical deformation rates. The DEIS should differentiate between long-term and short-term (contemporary) uplift rates at the site and evaluate the potential for earthquake-related subsidence at the site. (DOGAMI)
- Section 4.1.1, (p.4-3, para 9)**
- SA1-93 "Erosional features formed along the northern..." Erosion features do not form deposits. Example of global item #2.
Erroneous technical statement. Such erroneous technical statements raise overall concerns about the qualifications of the applicant with respect to technical and public safety issues
A technical review of the DEIS by URS and relevant consultants to ensure adequate integration of technical analyses and results. (DOGAMI)
- Section 4.1.2.3 Geologic Hazards (p.4-3, para. 1)**
- SA1-94 "The only geologic hazard that would affect or be influenced..." Since significant dredging is proposed, shoreline erosion may not be the only geologic hazard affected or influenced along the waterway. Does not consider other hazards such as slope stability. Need scientific data to support the statement. Increase in depth of channel may cause slope instability along with shoreline erosion.

- SA1-89 URS reports are cited and complete references are provided in Appendix H. See also our response to comment SA1-4.
- SA1-90 See our response to SA1-4.
- SA1-91 The EIS discusses geological issues in section 4.1.
- SA1-92 Vertical deformation rates are provided as general geologic background information. Because such rates are relatively slow and not significant over the lifetime of an LNG facility, the contemporary uplift rate at the LNG terminal site was not evaluated. Although liquefaction and lateral spreading of soils may cause subsidence during an earthquake, the treatment of soils at the site by vibroflotation would minimize such potential.
- SA1-93 The referenced statement has been corrected. See also our response to comment SA1-4.
- SA1-94 Dredging is proposed only at the LNG terminal site, not at other locations along the LNG marine waterway. There would be no deepening of the navigation channel associated with the project.

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SA1-94 cont'd	Need detailed study or evaluation by a qualified and licensed geologist or engineer. Evaluate potential slope stability due to increase channel depth. (DOGAMI)	
SA1-95	<p>Section 4.1.2.3, (p. 4-3, para. 3) "Most of the natural shoreline is resistant to erosion...". This statement is unsubstantiated and may be inaccurate. May not consider geologic processes and hazards such as river course migration and slope stability. Need scientific data to support the statement. Analysis is missing. Increase in depth of channel may cause slope instability along with shoreline erosion. Need detailed study or evaluation by a qualified and licensed geologist or engineer. Evaluate historic current shoreline stability (including potential slope stability). Evaluate shoreline with proposed facilities and channel modifications. (DOGAMI)</p>	SA1-95 See our response to comment FA4-14.
SA1-96	<p>Section 4.1.2.3 (p. 4-5, para. 7) "NorthernStar commissioned a study of wave...". DEIS reports that LNG tanker wave heights would be "slightly larger" than other smaller, but similar sized tankers and does not report on the resulting erosion potential from this generalized wave height. Does not report how big the resulting waves will be and the erosion potential from these waves. Need scientific data to support the statement. Need detailed study or evaluation by a qualified and licensed geologist or engineer. Study that provides specifics about the boat wakes generated by the vessels, their impact at the shore (which is currently vague as it stands). Also baseline study and monitoring at the site. (DOGAMI)</p>	SA1-96 See our response to comment FA4-14.
SA1-97	<p>Section 4.1.2.3, (p. 4-5, para. 9) "Therefore, it is difficult to determine what additional impacts on shorelines...". Since it is difficult to determine before hand, some sort of baseline study and monitoring program should be implemented. (DOGAMI)</p>	SA1-97 See our response to comment FA4-14.
SA1-98	<p>Figure 4.1.3-1. Known faults in the Bradwood Landing Project Area (p. 4-10) This is not a map of known faults. It is simply a copy of the USGS fault and fold map, which identifies only certain types of faults. Example of global item #2. Detailed geotechnical evaluation for pipeline indicates that the pipeline will cross four mapped faults. These four faults are not shown on the map. Such erroneous technical statements raise overall concerns about the qualifications of the applicant with respect to technical and public safety issues Need a technical review of the DEIS by URS and relevant consultants to ensure adequate integration of technical analyses and results. Show ALL faults on the map or indicate map is not complete. (DOGAMI)</p>	SA1-98 Figure 4.1.3-1 depicts Quaternary faults from the USGS database of Quaternary faults. The figure and text in section 4.1.3.3 have been modified to include this information. The faults crossed by the pipeline are not known to be "active" but will be further investigated prior to construction.
SA1-99	<p>Section 4.1.3.2, Mineral Resources (p. 4-8, para. 2) "Before operation of the LNG terminal...". Since there is a hazardous facility proposed at the site, reclamation should be performed to adequate standards for this type of facility. DEIS proposes standard reclamation. Reclamation should be performed with the proposed hazardous facility in mind. Reclamation should be performed with the proposed hazardous facility in mind. Propose reclamation not to standard regulations, but to levels so that</p>	SA1-99 The quarry is not located within the permanent area of the LNG terminal and would not operate after LNG is put into the terminal. NorthernStar would design the quarry reclamation so that it would not affect the terminal facilities under the same magnitude earthquakes as used for designing the terminal facilities.

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- SA1-99
cont'd | a hazardous facility can operate without influence in any way from the reclaimed area.
(DOGAMI)
- SA1-100 | Section 4.1.3.3, Geologic Hazards (p. 4-9, para. 4)
“Debris flows or landslides initiated within Hunt Creek drainage...” Significant landslide hazards like debris flow impact, should be evaluated in detail by a qualified licensed geologist or engineer. There is no reference to a detailed study or evaluation by a qualified geologist or engineer. Need scientific data to support the statement and modeling to show debris flow won't impact the site. (DOGAMI)
- SA1-101 | Section 4.1.3.3 (p. 4-9, para. 6)
“The risk of rock fall runout proceeding north...” Significant landslide hazards like rock fall impact should be evaluated in detail by a qualified geologist or engineer. No reference to a detailed study or evaluation by a qualified geologist or engineer. Need scientific data to support the statement, a detailed study or evaluation by a qualified licensed geologist or engineer, and modeling to show rock fall won't impact the site. (DOGAMI)
- SA1-102 | Section 4.1.3.3 (p. 4-11, para. 10)
“Seismic risk can be quantified by the motions ...”. Ground motions are not expressed in terms of “acceleration due to gravity” as stated in the DEIS. Example of global item #2.
Ground motions are not expressed in terms of “acceleration due to gravity.” Ground motion maps are usually expressed in terms of a “percent of gravity”. Such erroneous technical statements raise overall concerns about the qualifications of the applicant with respect to technical and public safety issues
Please add a technical review of the DEIS by URS and relevant consultants to ensure adequate integration of technical analyses and results. (DOGAMI)
- SA1-103 | Section 4.1.3.3 (p. 4-11, para. 14)
“The OBE is controlled by earthquakes that have...”. This does not address earthquakes between 8.0 and 8.5 nor does it address earthquakes occurring outside the Cascadian subduction zone (CSZ). DEIS lacks references to magnitudes of earthquakes for operating basis earthquake (OBE) and safe shutdown earthquake (SSE) in the URS reports. FERC's draft seismic design guidelines on OBE (section 5.2) are based on probabilistic ground motions (not maximum earthquakes).
Add evaluation of OBE-SSE between 8.0 and 8.5. Evaluate earthquakes not on CSZ. Substantiate approach. A technical review of DEIS by URS and relevant consultants to ensure adequate integration of technical analyses and results. Provide consistent statements based on URS analyses. (DOGAMI)
- SA1-104 | Section 4.1.3.3, (p. 12, para. 15)
“Lateral spreading generally develops on gentle slopes...”. The susceptibility, severity, extent and risk of lateral spreading was not discussed. The global stability of the site was not discussed with respect to lateral spreading, including the extent inland, the potentially impacted area, and the associated risks. The site requires safety and stability from damaging permanent ground deformation from lateral spreading.

- SA1-100 NorthernStar reviewed site specific Lidar topography and proposed layout of the site facilities. The potential for debris flows impacting the facility is estimated to be very low due to the shallow Hunt Creek stream profile (average gradient from the mouth to 1 mile upstream is approximately 6 percent), lack of topographic evidence of past debris flows at the mouth of the creek, an approximate 1,000-foot setback of the proposed perimeter berm from the mouth of Hunt Creek, and the height of the proposed berm above the surrounding topography (greater than 10 feet). The creek profile includes a 44-foot-high vertical waterfall at the mouth of the creek that, combined with loss of stream confinement, would effectively dissipate horizontal energy as any debris flow exits the incised portion of the drainage and moves onto the 2,000-by-1,000-foot flat area between the mouth of the creek and the perimeter berm. See also our responses to comments SA1-4 and LA7-25.
- SA1-101 As indicated in section 4.1.3.3, we do not believe that there is significant risk to the site due to rockfall runout emanating within the Hunt Creek drainage. A detailed study is not warranted due to the large setback of the facility from the base of the bluff (rockfall source area) combined with the proposed perimeter berm. See also our response to comment SA1-4.
- SA1-102 Our discussion regarding seismic design and earthquakes in section 4.1.3.3 has been revised. Additional details regarding the “design earthquake” ground motions have been added to the text. URS is the technical consultant hired by NorthernStar to perform the necessary studies documenting the seismic design requirements for the proposed facility. Any “technical review” of the draft EIS by URS would be largely irrelevant as it is the URS studies and recommendations that form the basis for NorthernStar's proposed design. Any short-comings or errors in describing the proposed mitigation measures and the findings of our reviews of the proposal are those of the FERC staff. Also see our response to comment SA1-88.
- SA1-103 See our responses to comments SA1-4 and SA1-102.
- SA1-104 Liquefaction and lateral spread analyses were performed for the site and are discussed in the Preliminary Geotechnical Report and the Berthing Facility Geotechnical Data Reports. Lateral spreads of up to 6.5 feet have been conservatively estimated. This information has been added to section 4.1.3.3. As discussed in section 4.1.3.3, mitigation measures would include soil treatment such as vibroflotation to strengthen site soils and deep foundation systems.

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- SA1-104 cont'd Add discussion of the global stability of the site with respect to permanent ground deformation from lateral spreading including severity, extent and risk. Discuss mitigation measures that specifically address lateral spreading risks. (DOGAMI)
- Section 4.1.3.3, (p. 4-12, para. 3)
SA1-105 "The LNG storage tanks would also be supported on deep foundations." Additional parts of the support facility should be considered for ground improvements against liquefaction in addition to the tanks. Support facilities are important and deep foundations should be considered as well. (DOGAMI)
- Section 4.1.3.3, (p. 4-14, para. 4)
SA1-106 "The DOGAMI has prepared tsunami hazard maps for the shoreline of the Columbia River..." The proposed facility should be evaluated on a site-specific basis. Regional maps developed over 10 years ago are cited. Site should be re-evaluated on a site-specific basis and include recent scientific data. (DOGAMI)
- Section 4.1.3.3, (p. 4-14, para. 5)
SA1-107 "However, should one occur, the raised elevation of the site..." Conclusions like impacts to the site from locally derived tsunamis should be from qualified professionals. DEIS contains no reference to a detailed study or evaluation by a qualified geologist or engineer. Need scientific data to support the statement and modeling to assess local tsunami impact to the site. Should include detailed landslide map of the area and dynamic slope stability analysis. (DOGAMI)
- Section 4.1.3.3, (p. 4-14, para. 7)
SA1-108 "Federal Emergency Management Agency (FEMA) (1995) insurance rate maps..." This does not consider that the FEMA maps may be out of date and/or simply incorrect because they are based on old topographic data. Also does not consider a potential dam break and subsequent inundation/flooding levels. Need scientific data to support the use of old FEMA maps and evaluation of a dam break. (DOGAMI)
- Section 4.1.3.3, (p. 4-16, para. 6)
SA1-109 "The project would not likely result in land surface subsidence and settlement..." URS report (Dec 2005) indicates "softer compressible soils" and significant settlement. DEIS does not consider regional seismic induced subsidence. Need a technical review of DEIS by URS and relevant consultants to ensure adequate integration of technical analyses and results. Provide consistent statements based on URS analyses. Also, consider settlement monitoring during operation. (DOGAMI)
- Section 4.1.3.3, (p. 4-17, para. 3)
SA1-110 "Significant geological hazards are unlikely to be present in the vicinity of the proposed electric...". Pipeline report indicates significant landslides adjacent to the site. Need scientific data and a detailed study or evaluation by a qualified geologist or engineer to support statement. (DOGAMI)
- Section 4.1.4.3 Geologic Hazards (p. 4-20, para. 3)

- SA1-105 Text has been added to section 4.1.3.3 to indicate that all structures integral to the operation of the facility would be founded on deep foundations or designed to function in the case of large displacements. FERC's Seismic Design Guidelines (Jan. 2007) specifies a comprehensive approach to the seismic design of LNG facilities. The FERC staff is not necessarily in agreement with NorthernStar at this time regarding certain preliminary design concepts and other statements made on the record. Appropriate measures would be worked out later in the detailed design process.
- SA1-106 The previously published tsunami maps indicated insignificant effects downstream of the Bradwood Landing location. Given that the berm surrounding the LNG terminal would be at a minimum elevation of 25 feet NAVD (more than 15 feet above high tide level) and the site is located at CRM 38, we do not believe that a site-specific tsunami analysis is warranted.
- SA1-107 We have included additional text regarding NorthernStar's analysis of local tsunami risk in section 4.1.3.3. See also our response to SA1-4.
- SA1-108 Given that the site elevation would be 12 feet above the 100-year flood level based on the FEMA flood maps used, we do not believe further analysis is warranted. The design is not sensitive to the accuracy of FEMA maps. The 100-year flood level is 13.23 feet NAVD and the 500 year flood level is below 14 feet NAVD. The finished site elevation would be 20 feet NAVD and the 5 ft perimeter berm would give additional protection.
- We have added discussion of a potential dam break to section 4.1.3.3.
- SA1-109 Settlement would be mitigated at the site with ground improvement and deep foundations, as stated in the section 4.1.3.3, and therefore is not expected to occur. Earthquake-induced regional subsidence is not expected to be a factor for the project.
- SA1-110 The landslide described in the Pipeline Geohazards Report (URS, 2007) is the Wauna landslide, between about 1.4 and 4.0 miles from the facility. The proposed powerline towers would not cross the Wauna landslide but would tie into existing BPA powerlines north of the landslide.

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- SA1-111 "Northern Star indicated it would install automated vibrating...". The DEIS does not indicate how "lack of recent (landslide) activity" was determined. There is no reference to a detailed study or evaluation by a qualified geologist or engineer or scientific data to support the statement. Developer should plan to install inclinometers or some type of monitoring to determine it is not currently moving. (DOGAMI)
- SA1-112 Section 4.1.4.3, (p. 4-23, para.3)
"The 1980 eruption of Mount St. Helens will likely reduce...". This statement and the sentence after are inaccurate and is inconsistent to the references referred. DEIS states that future Mt. St. Helens eruptions will be reduced because of the explosion in 1980 thereby precluding lahars over the design lifetime of the pipeline. A detailed study or evaluation by a qualified geologist or engineer is needed to support statement. (DOGAMI)
- SA1-113 Sections 4.2.3 Pipeline Facilities (Soils and Sediments)
4.3.2.4 Pipeline Facilities (Water Resources)
4.4.1.3 Pipeline Facilities (Wetlands and Terrestrial Vegetation)
4.4.2.3 Pipeline Facilities (Upland Vegetation)
Pipeline Facilities. There are 94 stream crossings and 24 wetland area crossings proposed to accommodate 30 miles of new pipeline. Associated with these disturbances to the streams and wetlands themselves, are significant impacts to riparian and wetland vegetation. For instance, a full ½ of the existing riparian trees will be removed. Even with total replacement by replanting (which is not proposed because a vegetation free right-of-way is required for 25-feet on each side of the pipeline), temporal losses of wetland and water quality function will be experienced for 1-3 years for wetland shrubs and up to 20 years for trees in forested wetland areas and riparian areas. This riparian vegetation, and in particular trees, is essential to providing water quality and habitat function. Such services as shade to reduce stream temperature, pollutant uptake, stormwater treatment and infiltration, and bank stabilization through root structure and evapotranspiration will be lost in the impacted areas for years to decades. The sensitivity of these areas is not accurately described in the DEIS. The route of the pipeline parallels the Columbia River through tidal wetlands and tributary mouths, which are important spawning, rearing and predator avoidance areas for listed as well as resident species. Loss of riparian vegetation in these areas is directly contradictory to the applicable Water Quality Management Plan for the North Coast Total Maximum Daily Load (TMDL), which requires preservation and restoration of riparian areas in tributaries to address temperature and other water quality parameters. (ODEQ)
- SA1-114 Section 4.3.1. LNG Terminal (p. 4-52 and 4-54)
Groundwater Uses, and Withdrawals. The LNG Terminal must obtain water rights from OWRD for terminal uses listed in the DEIS. With regard to obtaining water for ballast and cooling for LNG ships, Bradwood Landing has indicated its intent to apply for a water right for a fixed, on-shore or on-dock diversion system. If Bradwood does not apply for a water right, the state urges Bradwood to consult with OWRD in the near future to assure that water appropriation does not cause injury to existing uses or over-appropriation of the water resource. Wells appropriating ground water used for ballast and cooling must comply with OWRD's statutes and rules governing well construction. The state urges FERC to require a funding agreement for consultation with OWRD on water rights issues.

- SA1-111 NorthernStar has indicated that it would conduct further investigation of the activity of the Wauna Landslide prior to final design of the pipeline (Pipeline Geohazards Report; URS, 2007). The need for instrumentation would be evaluated based on the results of this investigation.
- SA1-112 The discussion in section 4.1.4.3 regarding Mount St. Helens and lahars has been revised.
- SA1-113 Potential impacts on wetlands and water quality due to clearing of trees and vegetation are discussed in sections 4.4.1 and 4.3.2, respectively. These sections also describe measures to avoid, minimize, and compensate for tree clearing in riparian and wetland habitats. To reduce impacts on riparian vegetation, a riparian strip at least 25 feet wide would be allowed to permanently revegetate with native woody plant species across the entire right-of-way, except for trees greater than 15 feet tall or deep-rooted shrubs within 15 feet of the pipeline. Upland forested communities would be replanted in-kind with trees, with the exception of the portion of the right-of-way within 15 feet of the pipeline. Forested wetlands would be replanted with in-kind wetland tree specimens, with the exception of the portion of the right-of-way within 5 feet of the pipeline. NorthernStar's proposed tree planting exceeds the revegetation requirements of the FERC staff's Procedures. Permanent impacts on wetlands would be mitigated by restoring sites in the general project area that would be set aside and/or developed as compensatory mitigation. A goal of NorthernStar's proposed compensatory mitigation is to reestablish functioning forested wetland and riparian habitat and improve other wetland functions, including water quality improvement, buffer functions, and wildlife habitat. Impacts on listed species resulting from riparian and wetland clearing will be addressed in additional detail in the revised BA and EFH Assessment. See also the response to comment SA1-16.
- SA1-114 See our response to comment IND106-76

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SA1-114 cont'd A limited License application for construction water would need to be submitted or wait to see if permits are granted and use industrial manufacturing water under a permit. In any event, authorization to use water will be required before construction may begin. This should take place before any FERC Certification. (OWRD)

Section 4.3.1.4. (P. 4-56)

SA1-115 **Pipeline Facilities.** Pipeline excavation and installation, including horizontal drilling activities may adversely affect shallow wells, springs, and surface water in the vicinity. There may well be old wells and home sites that are using springs that are not on any database due to their age. How would adverse effects be handled?
A plan to identify any of these old wells or spring uses needs to be developed and implemented. In addition, a plan to mitigate any impacts needs to be in place before any FERC Certification. (OWRD)

Section 4.3.2.2 (p. 4-67)

SA1-116 **Waterway for LNG Marine Traffic.** This is not an OWRD permitting issue as the intake system is currently described. The DEIS should mention that a permit is not required as the system is currently designed. However, if they change to a specific diversion and piping system, a permit would be required. This should be done prior to any FERC Certification. (OWRD)

Section 4.3.2.3 (p. 4-73)

SA1-117 **Bridge Replacement, first bullet.** The in-water work period is correct but ODFW further recommends (but does not require) work below the ordinary high water (OHW) mark be scheduled (as feasible) to coincide with the low tide series during the in-water work period as an additional environmental precaution. (ODFW)

Section 4.3.2.3 (p. 4-75)

SA1-118 **Railroad Line Realignment, top of page.** This section discusses the railroad right-of-way and its close proximity in one section (50 feet) to Hunt Creek and ditch/ buffer. ODFW's earlier comments requested that "the long-term protection should be addressed also (permanent berm at toe of slope to collect any stray ballast material, or to collect any storm-water and direct it to a more suitable area, etc.)". This section indicates that a 5-foot wide ditch will be used, but does not indicate depth or slope. Within the section in close proximity to Hunt Creek, a ditch may not be sufficient to keep material from working into the buffered area. The DEIS also appears to assume the railroad company will maintain the ditch in the right-of-way, which may be questionable since the line is in service but not currently in use (page 2-41). ODFW proposes that the 50-foot area in question have a small berm (2 feet or so high) incorporated into the south side of the ditch along the narrow area of encroachment as additional protection. (ODFW)

Section 4.3.2.4 Pipeline Facilities and Table 4.3.2-4 Waterbodies Crossed by the Bradwood Landing Project). (p. 4-78 – 4-82)

SA1-119 **Pipeline facilities crossing streams.** Methods for crossings described here and in section 2.4.2.2 are not being questioned. However, each crossing listed here will need ODFW approval as to the type of crossing method, timing horizontal directional drilling especially, as the DEIS states that this will be outside the in-water work window), and pipeline depth. In addition, it does not appear that adequate coordination with ODFW has occurred in order to provide designation of

SA1-115 See our responses to comments PM6-85 and PM1-40.

SA1-116 We have revised portions of the EIS. It may not be necessary for NorthernStar to acquire a permit from OWRD before the Commission issues its Order.

SA1-117 It is anticipated that working during low tide would be the preference of the construction contractor as well, in that fewer complications can be expected.

SA1-118 Section 4.3.2.3 has been revised to indicate that a small berm would be incorporated into the south side of the ditch adjacent to the railroad tracks as additional protection.

SA1-119 Because the Waterbody and Wetland Construction and Mitigation Procedures Plan has not been finalized, we have recommended in section 4.3.2.4 that NorthernStar continue to consult with the COE, NMFS, FWS, and appropriate federal and state agencies to finalize its Waterbody and Wetland Construction and Mitigation Procedures Plan.

Designation of fish use at waterbodies impacted by the proposed pipeline in Oregon was determined based on the NMFS's Atlas of Salmon and Steelhead Habitat in the Oregon Lower Columbia and Willamette Basins (2005). NorthernStar has also consulted with the ODFW regarding the occurrence of federally listed species at proposed pipeline crossings described in section 4.6.2.3.

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SA1-119
cont'd fish use at each crossing location. (Note: only crossings at which native migratory fish are or were historically present require ODFW approval).

SA1-120 Timing of Stream Crossings, other than the Columbia River, using horizontal directional drilling. In regard to horizontal directional drilling and timing of the work on streams other than the Columbia River, ODFW will not support horizontal directional drilling activities outside of the in-water work period in waterways containing native fish species. Non-fish bearing stream crossings may be considered for out of in-water period work but ODFW's recommendation on these streams must be determined on a site by site basis.

The rationale for this recommendation is as follows: a frac-out or other drilling-related accident outside of the in-water work period could have serious impacts to native fish which spawn and rear in the vicinity of the stream crossing. ODFW is responsible for more than just salmonids (listed or otherwise), and therefore makes this recommendation for all native fish. Greatest impacts would likely be related to spawning areas and activities, but ODFW must also consider juvenile fish that may be rearing in the area. A frac-out during higher flows may be harder to control/repair and clean up, and may involve a much larger area of impact due to higher flows, either from the material itself or from the clean up process. It would seem reasonable to consider out of period work on non-fish bearing streams but ODFW's recommendation will be dependent on distance from fish-bearing water, size, access to site, etc. There may also be amphibian and other wildlife issues that would remove the possibility of working outside of the in-water work period on non-fish bearing streams.

ODFW understands the project sequencing and delivery delay implications that this and the Columbia River HDD crossing (next section) recommendations have for the applicant, but without assurance that no frac-outs will occur, this is the best stance ODFW can take. ODFW's Northwest Region has dealt with frac-outs in the Tualatin basin on past HDD natural gas pipeline projects and frac-outs can indeed cause substantial aquatic impacts. There is no guarantee as to where frac-outs will actually surface, and what quantities of lubricant or bentonite will burst out in a stream before the contractors can act and stop the flow. Mobilizing heavy mop-up rigs across the landscape to find and clean up the mess during the wetter phases of the year is also an access concern. What the in-water work recommendation will mean for the contractor is redesigning the approach to completing all the various elements of the project. This very well might mean longer work hours and extra equipment to conduct horizontal directional drilling under sensitive stream environments only during ODFW-approved in-water work timing months. ODFW would be open to a meeting with the applicant, FERC and National Marine Fisheries Service (NMFS) to discuss all stream and Columbia River horizontal directional drilling crossings.

SA1-121 Timing of HDD for the Columbia River Crossing. ODFW recommends restricting in-water work associated with the Bradwood Landing HDD in the Columbia River to the month of December due to concerns over chum salmon, smelt, and spring Chinook. Normally the recommended in-water work period for the Columbia River is from November 1 through the month of February. Due to the potential of a frac-out occurring during drilling, ODFW recommends the HDD operation not be conducted during the month of November because of potential negative impacts to Endangered Species Act (ESA)-listed chum salmon. Returning chum salmon are most active in the Columbia River during the months of November and December. The chum salmon populations in Oregon on the Columbia River are in an area between two and ten miles below Bonneville Dam around Ives and Pierce islands, near the mouth of Multnomah Creek and at the mouth of McCord Creek. Returning chum salmon adults

SA1-120 Waterbody crossings using the HDD or conventional bore method may be performed outside of the in-water work windows during suitable construction seasons, typically from April through November, depending on the weather. Construction during the rainy season would increase safety concerns and make compliance with NPDES permits more difficult. Waterbody crossings using the HDD or bore method would not involve construction below the ordinary high water mark or MHHW. Waterbody crossing methods, timing, species and life stage occurrence, and potential impacts will be discussed in detail in the revised BA and EFH Assessment.

SA1-121 The crossing of the Columbia River using the HDD method would take 3 months to complete and is currently scheduled to occur during the summer months. On the Oregon side of the river, laydown areas are located in wetlands and the Washington side of the river is relatively hilly; therefore, the HDD crossing of the Columbia River would occur during the dry season. See also our response to comment SA1-120.

Potential impacts on aquatic resources (including salmonids) due to a frac-out are summarized in section 4.5.3.1 and will be discussed in detail in the revised BA and EFH Assessment.

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- SA1-121 cont'd begin returning to spawning grounds beginning the first week of November and continue to be present in the Columbia River through December with peak spawning taking place in the above areas in mid-December. A frac-out at River Mile (RM) 53 could have the effect of delaying adult chum salmon migration to spawning grounds. Since typically the bulk of adult chum salmon migration occurs during the month of November, we recommend that no HDD be done during that month.
- Smelt begin returning to spawn in the Columbia River and tributaries in December with the majority of mainstem spawners being caught in commercial fisheries in January and February. Commercial smelt fisheries operate in the mainstem Columbia River below the Clatskanie River (RM 50) around Wallace and Puget islands. Should a frac-out occur during January or February it may not only interfere with an important fishery but also negatively impact mainstem spawning in this reach of the river. In addition, spring Chinook salmon begin migrating through this reach of the Columbia River on their way upriver to spawning grounds. Commercial fisheries in the lower Columbia River catch spring Chinook salmon in January and February. Should a frac-out in the Columbia River occur during January or February, it could not only have detrimental effects on an important winter commercial fishery but also disturb and delay migration of ESA-listed upriver spring Chinook salmon.
- Because of the above concerns for returning spawners and fisheries in the lower Columbia River and the unpredictable nature of HDD with the possibility of frac-outs taking place while drilling, ODFW recommends that any HDD below the Columbia River be limited to only the month of December when there is the least amount of migration of salmon and smelt occurring in the Columbia River. (ODFW)
- Section 4.4.1.2 LGN Terminal (p. 4-96, p. 4-153 of DEIS) and Compensatory Wetlands Mitigation plan (p. 73)**
- SA1-122 **Terminal site Impacts and Compensatory Wetlands Mitigation/Compensatory Mitigation Proposal** Need to clarify mitigation plans for water impacts on the Hunt Creek/Clifton Channel site. The Compensatory Wetlands Mitigation plan lists the acreage to be preserved at Hunt Creek/Clifton Channel is 57 acres (p. 73), but the DEIS states 61 acres.
- Preservation may not be adequate to fit within the CIL per OAR 141-085-0131(4). DSL recommends that additional compensatory mitigation measures need to be considered for impacts to waters, including annual maintenance dredging and aquatic impacts.
- A finalized and complete Compensatory Wetlands Mitigation and Compensatory Mitigation plan is required prior to any authorization from DSL. As part of Removal/Fill permit, there will be specific success criteria that will need to be met for the Compensatory Mitigation and Compensatory Wetlands Mitigation monitoring report. (DSL)
- Section 4.4.1.2 (p. 4-95)**
- SA1-123 **LNG Terminal Compensatory Mitigation**. There is no discussion about the methodology that will be used to measure function (baseline functions, changes in function, replacement of function at mitigation sites). ODFW recommends that the DEIS refer to a methodology and address this in detail in the Mitigation Plan. (ODFW)
- Section 4.4.1.2 (p. 4-96)**
- SA1-124 **LNG Terminal Compensatory Mitigation, 3rd paragraph**. The on-site biologist that is described in this section as being present during construction of the mitigation site should also be assigned

SA1-122 See our responses to comments FA2-10 and FA3-3.

SA1-123 See our response to comment FA2-10.

SA1-124 As described in section 2.1.6, NorthernStar is currently revising its Compensatory Mitigation Plan based on input received through agencies and from comments on the draft EIS. Therefore, it is anticipated that this comment will be addressed in the final Compensatory Mitigation Plan. See also our response to comment FA2-10.

- SA1-124 cont'd to ensure that negative impacts to wildlife are avoided (i.e., not just for fish impact avoidance). ODFW recommends that the responsibilities of the on-site biologist include wildlife minimization and avoidance responsibilities (e.g., assuring that timing of blasting avoid sensitive wildlife sites and nesting times). (ODFW)
- Section 4.4.1.3 Pipeline Facilities (p. 4-98)**
SA1-125 Pipeline Facilities Impacts and Mitigation, 4th paragraph. Horizontal directional drilling is addressed with no mention of potential frac-outs and mitigation that would occur in the event of frac-outs. ODFW recommends that this section address what will be done to avoid the potential for frac-outs and then mitigate for impacts in the event that frac-outs do occur. (ODFW)
- Section 4.4.1.3 (p. 4-107)**
SA1-126 Pipeline Facilities Compensatory Mitigation. Regarding the Delameter Creek wetland mitigation site, information is lacking about whether or not the landowner is amenable to a Conservation Easement. ODFW recommends that the DEIS provide this information and clarify how the property will be protected in the long-term. A third-party should hold this CE to ensure long-term protection. (ODFW)
- Section 4.4.2.2 LNG Terminal (p. 4-110 – 4-111)**
SA1-127 LNG Terminal Impacts and Mitigation. Regarding the tree inventory, although tree species other than cottonwood are “not abundant”, it is unclear if any of these are proposed to be removed. It is also unclear if the replacement trees would replace what would be lost. (ODFW)
- Section 4.4.2.2 (p. 4-112)**
SA1-128 LNG Terminal Impacts and Mitigation. Regarding the management of trees within 25 feet of the security fence, topping of trees may not effectively limit the height of some tree species. ODFW suggests that, in addition to topping, girdling trees will limit tree growth and promote development of snags. Also, ODFW recommends placing cleared vegetation on mitigation sites for habitat enhancement (e.g., brush piles). (ODFW)
- Section 4.4.2.2, page 4-112**
SA1-129 LNG Terminal Impacts and Mitigation. It is unclear what seeding with “conservation grasses” means. Please explain this. ODFW recommends coordination with ODFW’S Tillamook Office regarding a grass seed mix that would be acceptable for revegetating the project’s disturbed areas. (ODFW)
- Section 4.4.2.3 (p. 4-115)**
SA1-130 Pipeline Facilities General Impacts and Mitigation, Pipeline Right-of-Way. Final disposition of woody vegetation/ trees removed from the workspace is discussed in this section. Is there an opportunity to reach a similar agreement with ODFW for use of debris/trees for on-site mitigation? Please explore this option and address in the Final EIS. (ODFW)
- Table 4.5.1-2 (p. 4-130)**
SA1-131 Bullfrog, nutria, house sparrow, rock dove are non-native, invasive species. ODFW recommends removing these species or acknowledging in a footnote that these are not species of concern because of their non-native status. (ODFW)

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- SA1-125 Section 4.4.1.3 has been revised to include a discussion of the potential for frac-outs in wetlands crossed using the HDD method as well as NorthernStar’s HDD Contingency Plan, which includes mitigation measures to be implemented in the event of a frac-out. Directions for accessing NorthernStar’s HDD Contingency Plan (Frac-out Plan) via the eLibrary can be found in the response to comment FA3-13.
- SA1-126 See our response to comment FA2-10.
- SA1-127 Section 4.5.2.2 has been revised to include the number of trees other than cottonwoods included in the tree inventory conducted by NorthernStar in June 2007. Although the precise number of non-cottonwood trees that would be cleared as a result of terminal construction was not quantified, it did state that most of the trees to be removed would be located along the Hunt Creek estuary, where about 40 red alder, Oregon ash, Sitka spruce, and bigleaf maple are located. NorthernStar proposes to plant 1,895 replacement trees within the LNG terminal site consisting of cottonwoods and other species based on soil and hydrology suitability (e.g., Sitka spruce, red alder, Pacific willow, and other native tree species).
- SA1-128 Although we agree that girdling trees would be an effective method of limiting the height of trees, we are not aware of any environmental advantages to girdling the trees for security reasons. Because the Compensatory Mitigation Plan has not been finalized, we have recommended that NorthernStar continue to consult with the COE, FWS, NMFS, ODSL, WDE, and other appropriate resource agencies to finalize its Compensatory Mitigation Plan. The placement of cleared vegetation on mitigation sites for habitat enhancement purposes could be considered as NorthernStar finalizes its plan. Directions for accessing NorthernStar’s Compensatory Mitigation Plan via the eLibrary can be found in the response to comment PM6-11.
- SA1-129 The term “conservation grasses” generally refers to a mixture of grasses, legumes, and forbs. Because the first use of the term “conservation grasses” occurs in section 4.3.2.4, that section was revised to include a definition of the term. We have recommended in section 4.4.2.3 that NorthernStar continue to consult with the COE, FWS, NMFS, Oregon and Washington Departments of Agriculture, and other appropriate resource agencies to revise its Noxious Weeds and Soil-borne Plant Disease Control Plan. Included within this plan is a description of the species that would be used for revegetation in areas impacted by project activities. Directions for accessing NorthernStar’s Noxious Weeds and Soil-borne Plant Disease Control Plan via the eLibrary can be found in the response to comment PM6-60.
- SA1-130 Specific mitigation measures regarding the use of debris/trees for on-site mitigation are beyond the technical scope of the EIS. See also our response to comment SA1-128.
- SA1-131 A footnote has been added to table 4.5.1-2 indicating the non-native, invasive species that occur along the waterway or at the LNG terminal site.

Section 4.5.2.1, page 4-139 – 4-140.

SA1-132 **Aquatic Resources Log Pond Filling and page 4-141 Hunt Creek Bridge Replacement.** Aquatic wildlife may also be present at these locations. A wildlife salvage plan should be prepared and implemented. ODFW permits are needed to conduct fish and wildlife collection/relocation. (ODFW)

Section 4.5.2, LNG Terminal (p. 153, para. 3, Hunt Creek; Section 4.5.3.1)

SA1-133 The project proposal claims that preserving Hunt Creek is mitigation. ODFW does not consider preservation as mitigation but it is a good thing to do. Preservation does not replace lost habitat. There will still be habitat lost even with Hunt Creek preserved. Again, ODFW allows preservation but does not count it as mitigation for lost habitat. (ODFW)

Section 4.5.2.2 (p. 4-154)

SA1-134a **Essential Fish Habitat.** ODFW is aware that this section refers to NMFS' Essential Fish Habitat designations. In regard to Oregon Department of State Lands' (DSL) Essential Fish Habitat designation, the applicant/FERC should keep the following information in mind. This section suggests that only two species of Pacific salmon (Chinook and Coho) may be negatively affected by the Bradwood Landing project. Since the Columbia River estuary is known to be an area where not only Chinook and Coho, but also chum salmon and steelhead rear and migrate through, chum and steelhead should be included in the list of fish species Essential Fish Habitat (according to DSL definition) that will be impacted by an LNG project at Bradwood Landing. (ODFW)

Section 4.5.2.3 Terrestrial Wildlife (p. 4-156 – 4-159)

SA1-134b ODFW believes this section provides a thorough description of general impacts on terrestrial wildlife. (ODFW)

Section 4.5.2.3, page 4-158

SA1-135 **Terrestrial Wildlife General Impacts on Terrestrial Wildlife.** Wildlife could become entrapped inside the terminal facility's fence. ODFW recommends development of a contingency plan for wildlife trapped inside the facility's fence. (ODFW)

Section 4.5.2.3, page 4-161

SA1-136 **Terrestrial Wildlife Active Osprey Nest.** Regarding relocation of the old osprey nest onto a new platform, it may not be feasible to keep the old nest intact. ODFW recommends that the Final EIS clarify that this will be attempted, but in the event it is not feasible, portions of the old nest will be used to construct a nest start on the new platform with guidance from ODFW. (ODFW)

Section 4.5.2.3 (p. 4-161)

SA1-137 **Terrestrial Wildlife.** This section includes bullfrog, and nutria and these are non-native, invasive species. Either remove these species or acknowledge in a footnote that no mitigation will occur for these species because of their non-native status. (ODFW)

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- SA1-132 NorthernStar's Fish Salvage Plan includes a statement that all work would be performed under an ODFW/NMFS scientific collection permit. We believe that wildlife concerns related to salvage activities will be adequately identified and addressed through the scientific collection permit process.
- SA1-133 See our response to comment FA3-3.
- SA1-134a We believe that the impacts of the project on EFH, as it is defined under the MSA, are adequately addressed in the EIS. A detailed description of potential impacts on federally listed salmonids occurring in the vicinity of the Bradwood Landing Project is included in section 4.6.2.
- SA1-134b We agree.
- SA1-135 As described in section 4.5.2.3, the fencing that would surround the proposed LNG terminal site would be 10-foot-high woven wire topped with barbed wire. At this height, the fence would effectively preclude most if not all wildlife from jumping over the fence, thus minimizing or eliminating the risk of wildlife being trapped within the LNG terminal site. Therefore, we feel that the development of a contingency plan for wildlife trapped within the LNG terminal site is not necessary.
- SA1-136 Section 4.5.2.3 has been revised to reflect the osprey nest relocation recommendations included in this comment.
- SA1-137 Within section 4.5.2.3, the discussion of wildlife species occurring at the Peterson Point Mitigation Site has been revised.

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- Section 4.5.2.3 Terrestrial Wildlife (p. 4-172)**
SA1-138 **General Impacts on Terrestrial Wildlife.** The statement in this section that impacts on wildlife from construction of the pipeline are generally short-term is not entirely accurate. Some of the habitat impacts are long-term. (ODFW)
- Table 4.5.3-4 Wild Life Species Occurring . . . Pipeline Area(p. 4-173)**
SA1-139 Bullfrog, nutria, house sparrow and rock dove which are non-native, invasive species are included. Either remove these species or acknowledge in a footnote that these are not species of concern because of their non-native status. (ODFW)
- Section 4.5.3.3, (1) pages 4-172 -4-175; (2) page 4-174**
SA1-140 (1) The section on General Impacts on Terrestrial Wildlife is a rather abbreviated description of impacts. ODFW recommends expanding the narrative in this section to a similar depth as done on p 4-156 (see comment above).
(2) This section contains a good description of the anticipated re-vegetation and monitoring plan. (ODFW)
- Section 4.6.1.1 Federally Listed Threatened and Endangered Species (p. 4-182, last paragraph on Chinook Salmon)**
SA1-141 The statement "Because of their large body size (over 100 pounds and up to 58 inches in length), Chinook tend..." is incorrect and misleading. The statement infers this is a common size for Chinook which was probably not true even in the period before Columbia River dams. Although there were fish of this size, they were still the exception rather than the norm. A better assessment would be "(average size of 20 pounds and average lengths of 34 – 38 inches, and a few over 40 pounds)..." This wording would be more reflective of current physical attributes for Columbia River Chinook. (ODFW)
- Section 4.6.1.2 State Listed T&E Species (p. 4-197)**
SA1-142 **Western Pond Turtle.** The status of western pond turtle in Oregon as State sensitive-critical is not mentioned in Section 4.6. Please include this species, its status and information. (ODFW)
- Section 4.6.1.2 State Listed T&E Species. (p. 4-198)**
SA1-143 **Columbia Torrent (seep) Salamander.** The status of the Columbia torrent salamander in Oregon as State sensitive-critical is not mentioned in Section 4.6. Please include this species, its status and information. (ODFW)
- Section 4.6.1.2 State Listed T&E Species (p. 4-199)**
SA1-144 **American Peregrine Falcon.** The status of American peregrine falcon needs to be corrected. The American peregrine falcon was de-listed in April 2007. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p. 4-199)**
SA1-145 **Townsend's Big-eared Bat.** The status of the Townsend's big-eared bat in Oregon as State sensitive-critical is not mentioned in Section 4.6. Please include this species, its status and information. (ODFW)

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- SA1-138 Section 4.5.2.3 has been revised to provide additional information on potential long-term impacts on wildlife due to construction of the pipeline.
- SA1-139 A footnote has been added to table 4.5.3-4 indicating the non-native, invasive species that occur along the proposed pipeline route.
- SA1-140 Section 4.5.3.3 has been revised to include additional discussion of the potential impacts on terrestrial wildlife due to construction and operation of the pipeline facilities.
- SA1-141 Section 4.6.1.1 has been revised to reflect the typical body size of Chinook.
- SA1-142 The western pond turtle is discussed in section 4.6.1.2. The section has been revised to reflect the State of Oregon's classification of the western pond turtle as sensitive-critical.
- SA1-143 The Columbia torrent (seep) salamander is discussed in section 4.6.1.3. The section has been revised to reflect the State of Oregon's classification of the Columbia torrent salamander as sensitive-critical.
- SA1-144 The American peregrine falcon was removed from the Oregon Threatened and Endangered Species List on April 13, 2007. Therefore, the species has been removed from section 4.6.1.2 of the EIS and is now included in section 4.6.1.3 (Other Special Status Species).
- SA1-145 Townsend's big-eared bat is discussed in section 4.6.1.3. The section has been revised to reflect the State of Oregon's classification of Townsend's big-eared bat as sensitive-critical.

- Section 4.6.1.3 Other Special Status Species (p. 4-201)**
SA1-146 Olive-sided Flycatcher. The status of the olive-sided flycatcher in Oregon is not clear if that listing comes from Oregon's State Sensitive Species List. Please clarify. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p. 4-201)**
SA1-147 Lewis' Woodpecker. This is more of an eastside species. Please double check to see if the project is within this species' range. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p. 4-201)**
SA1-148 Northern Goshawk. The status of the northern goshawk in Oregon as State sensitive-critical is not mentioned in Section 4.6. Please include this species, its status and information. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p. 4-201)**
SA1-149 Purple Martin. The status of the purple martin in Oregon as State sensitive-critical is not mentioned in Section 4.6. Please include this species, its status and information. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p.4-202)**
SA1-150 Northern Red-legged Frog. The status of the northern red-legged frog in Oregon is State sensitive-undetermined within the Coast Range Ecoregion. The information in the DEIS needs to be corrected. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p. 4-203)**
SA1-151 Tailed Frog. It is not clear in this section that the listing comes from Oregon's State Sensitive Species List. Please clarify. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p. 4-202)**
SA1-152 Western Painted Turtle. It is not clear in this section that the listing comes from Oregon's State Sensitive Species List. Please clarify. (ODFW)
- Section 4.6.1.3 Other Special Status Species (p. 4-204)**
SA1-153 Migratory Bird Treaty Act. Regarding the authority of the Migratory Bird Treaty Act (MBTA), please clarify that the MBTA applies to active nests, eggs, and young. (ODFW)
- Table 4.6.2-1 Summary of Potential Impacts and Mitigation Measures (p. 4-210)**
SA1-154 Action: accidental spill or leak of hazardous materials. There is no "if" scenario included. Please add and include what compensation would occur. The spill response plan should be mentioned. (ODFW)
- Table 4.6.2-1 (p. 4-210)**
SA1-155 Action: Filling log pond. The fish salvage plan needs to include obtaining necessary ODFW fish salvage permits. (ODFW)
- Section 4.6.2**
SA1-156 Impacts and Mitigation. For many federally listed species, there seems to be a lack of mitigation discussion. This section needs to include more information of mitigation measures that would be implemented. (ODFW)

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- SA1-146 The status of the olive-sided flycatcher as vulnerable on Oregon's State Sensitive Species List has been clarified in section 4.6.1.3.
- SA1-147 As the comment noted, Lewis' woodpecker generally occurs in the eastern portions of both Oregon and Washington. However, due to scoping comments received, the Lewis woodpecker was included in the sensitive species analysis conducted for the Bradwood Landing Project. The text in sections 4.6.1.3 has been revised to clarify that the species is not known to occur within the proposed project area.
- SA1-148 The status of the northern goshawk as critical on Oregon's State Sensitive Species List has been clarified in section 4.6.1.3.
- SA1-149 The status of the purple martin as critical on Oregon's State Sensitive Species List has been clarified in section 4.6.1.3.
- SA1-150 The status of the northern red-legged frog designated by the State of Oregon has been revised in section 4.6.1.3.
- SA1-151 The status of the tailed frog as vulnerable on Oregon's State Sensitive Species List has been clarified in section 4.6.1.3.
- SA1-152 The status of the western painted turtle as critical on Oregon's State Sensitive Species List has been clarified in section 4.6.1.3.
- SA1-153 The text within section 4.6.1.3 relating to the Migratory Bird Treaty Act has been revised to clarify that the Act extends protection to any part, nest, or egg of any such bird (16 USC. 703).
- SA1-154 The spill response plan has been added to table 4.6.2-1 as a minimization measure. We could not speculate what compensation would be appropriate in the event of a spill at this time.
- SA1-155 Section 4.5.2.1 has been revised to clarify that NorthernStar's Fish Salvage Plan includes a statement that all work would be performed under an ODFW/NMFS scientific collection permit.
- SA1-156 As described in section 2.1.5, NorthernStar is currently revising its Compensatory Mitigation Plan. The revised plan will be submitted to the NMFS and FWS as part of the FERC's BA and EFH Assessment. The FERC would not allow construction to begin until after we have completed formal consultation with the FWS and NMFS.

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Section 4.6.2.2, LNG Terminal (pp. 4-242 – 4-246)

SA1-157 **Salmon Enhancement Initiative.** The applicant has proposed to implement a Salmon Enhancement Initiative that would be entirely voluntary, amounting to \$50 million over the life of the project (40 – 50 years). In and of itself, this plan could be a big plus if there were guarantees that it will be completely and successfully implemented, over and above successfully implemented compensatory mitigation. The DEIS does not address specifics of the plan or environmental impacts from its implementation. Because the plan is voluntary and not regulatory and because little detail is given on its specifics, ODFW continues to have many questions about it. ODFW suggests that the applicant first assure successful avoidance, minimization and compensatory mitigation for the project before undertaking the SEL. (ODFW)

Section 4.6.2.2 LNG Terminal (p. 4-258)

SA1-158 **MBTA.** This section addresses vegetation clearing period to avoid impacts to nests. The proposed start is in mid-July. This section needs to acknowledge that active nests might still be found and address avoidance of impacts to any active nest. ODFW also recommends that the DEIS amend the vegetation clearing start date to August 1 (see comment below). (ODFW)

Section 4.6.2.3 Pipeline Facilities (p. 4-270)

SA1-159 **MBTA.** This section proposes a vegetation clearing period to avoid impacts to nests as starting August 1. This date is inconsistent with the start date given in Section 4.6.2.2 (i.e., mid-July) and again, needs to address avoidance actions that will be taken if an active nest site is found during vegetation clearing. (ODFW)

Sec 4.7.1.4 (p. 4-277)

SA1-160 **Publicly owned forest.** Add language on the project's proximity to and potential impacts on the Tillamook State Forest, another publicly owned forest in northwest Oregon. (ODF)

Sec 4.7.1.4 (p. 4-277 & 293)

SA1-161 **Recreation.** ODF has a Recreation Management Plan for the Astoria District (dated 2000), and recreation on the Clatsop SF is recognized and actively managed in coordination with local user groups and citizen advisory committees. Please consider this in your analysis. (ODF)

Section 4.7.1.4 (pp. 4-279 – 4-280) and

Section 4.8.1.7 Transportation and River Traffic (p. 4-328 – 4-330)

SA1-162 **Commercial and Recreational Fishing Use of Columbia River.** The moving 500-yard safety and security zone around 125 LNG ships per year (2 – 3 per week) as they move up the Columbia River will be very disruptive to commercial and recreational fishing boats. The applicant has stipulated in meetings with ODFW and other agencies that ships would ingress/egress the Columbia at night during key fishing seasons such as the Buoy 10 fishery (August – September). This commitment appears to be missing in the DEIS. ODFW recommends that the applicant/FERC include the commitment that ships will ingress/egress the Columbia River at night during key fishing seasons (see attached table for fishing boat numbers on the Columbia River below the proposed Bradwood Landing LNG Terminal site). (ODFW)

SA1-157 We agree. The FERC staff will continue to work with the resource and other regulatory agencies to ensure that the project includes appropriate measures to avoid, minimize, and compensate for environmental impacts.

SA1-158 Section 4.6.2.2 has been revised to address vegetation clearing timeframes and impacts on active nests.

SA1-159 Section 4.6.2.3 has been revised to address vegetation clearing timeframes and impacts on active nests.

SA1-160 Based on a review of State Forest maps, it appears that the Tillamook State Forest is over 60 miles south from Astoria, and well outside the project area.

SA1-161 Section 4.7.1.4 has been revised to include a reference to the Clatsop State Forest's Astoria District Recreation Management Plan.

SA1-162 The moving safety and security zone is expected to have a minor impact recreational and commercial fishing. Because of this, restrictive scheduling of LNG ship transits to nighttime hours does not appear justified. Furthermore, the Coast Guard has restricted the LNG ships to daytime transits for the first 6 months of operation to allow the Columbia River Pilots to become accustomed to the vessels.

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Section 4.7.2.7 (p. 4-294-5)

SA1-163 **Visuals.** ODF's Forest Management Plan for NW OR has Land Management Classification (OAR) designations which include areas where of visual concerns are designated. There is a visual designation along the Columbia River on the Clatsop State Forest directly west of the Bradwood site. Visual impacts from the designated areas on the Clatsop State Forest should be considered in this section. (ODF)

Section 4.8.3.6 Local Infrastructure and Public Services

Table 4.8.1-4 Existing Economic Conditions (p. 4-324)

SA1-164 **Emergency Services.** ODF is an oversight agency to Rural Fire Protection Districts and is a responder to forest and brush fires on private, rural, and state owned lands
Emergency and evacuation plans should be coordinated with ODF, particularly any emergency route across State Forest lands. (ODF)

Section 4.8.2.7 Transportation and Traffic (p. 343-345)

SA1-165 **Transportation and Traffic.** The DEIS understates the importance of US Route 30. "Highway 30 is a two-lane east-west highway that connects Astoria to Portland."

US Route 30 is the only highway serving the Lower Columbia corridor between Portland and Astoria. US Route 30 serves as the "Main Street" for most communities in the corridor and it is the primary facility for freight traffic serving industry in the corridor. The importance of US Route 30 for passenger and freight traffic is reflected by its designation as part of the National Highway System, a State Freight Route, and a Federally Designated Truck Route. ODOT has informed Northern Star's Engineering Firm CTS Engineering and Clatsop County that a Road Approach Permit will be required for Clifton Road at U.S. 30 and OAR 734 Division 51 requirements shall be met; mitigation will be identified during the road approach permitting process. Cost for all highway mitigation as determined by OAR 734 Division 51 due to the development impacts will be the sole responsibility of the developer.

ODOT will need to re-evaluate all traffic impacts at the Clifton Road intersection, once a road approach application has been submitted. Based on a preliminary review of the information supplied to ODOT as of this date, the required mitigation at the U.S. Highway 30/Clifton Road intersection will be:

1. Construction of a left turn refuge on Highway 30 at Clifton Road. This mitigation is based on safety and operational concerns, and is supported by turn-lane warrants being met during the 3-5 year construction period;
2. Widening of the highway shoulder in the southeast quadrant to accommodate right turning vehicles; and
3. Radii improvements.

CTS Engineering was informed that any other mitigation will be identified during the application process.

Currently, a Park & Ride is being proposed at a location approximately 2 miles east of the original location. A **right turn lane may be required in lieu of the previously mentioned shoulder widening**, due to the location of the Park & Ride, and its potential to increase the number of right turning vehicles.

SA1-163 Section 4.7.1.5 has been revised to include the Clatsop State Forest's Land Management Classification of "Visual" along the Columbia River just west of the proposed LNG terminal.

SA1-164 See our response to comment PM1-1.

SA1-165 The FERC acknowledges the ODOT's concerns regarding Highway 30 and its road approach application process. We will require that NorthernStar's proposed improvements to Clifton Road be reviewed and approved by ODOT prior to construction.

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SA1-165
cont'd

- The new Park & Ride location proposal does not alter ODOT's decision on requiring a left turn lane on US30 at Clifton Road or the Radii improvements..

SA1-166

Due to public safety and operational concerns, ODOT recommends inclusion of the following as a condition of approval: All improvements on U.S. Highway 30 and on Clifton Road shall be completed before any permits will be issued allowing construction at the terminal site which would result in increase traffic at the intersection of Clifton Road. (ODOT, Region 2)

Sec 4.9 Cultural Resources (p. 4-357 – 4-457)

SA1-167

Geologic hazards. The Wauna slide feature and associated Clatsop crest is a very large deep seated feature (portions of which exhibit active slopes) that maybe should be mentioned here (it is mentioned in other sections) (ODF)

Section 4.11.2 Cryogenic Design and Technical Review and Staff Recommended Mitigation # 93 (p. 5-33-5-340)

SA1-168

Reporting Events. All incidents (minor or otherwise) at LNG facilities in Oregon require the Oregon Department of Energy (ODOE) to respond by providing initial notifications to the Governor's office and other response organizations as appropriate. FERC Staff Recommended Mitigation #93 does not require the state be notified immediately of all non-scheduled events at Bradwood Landing.

FERC should revise the DEIS to include language about including the notification of the Oregon Department of Energy immediately of all non-scheduled events at Bradwood Landing in Staff Recommendation Mitigation #93.

Recommended Condition Language - As a condition of the permit, Northern Star will immediately notify the Oregon Department of Energy of all non-scheduled events at Bradwood Landing (*Staff Recommendation Mitigation #93*). (ODOE)
ODOE

Section 4.11.5.5, Requirements for LNG Carrier Operation and FERC Staff Recommended Mitigation #87 (p. 5-32)

SA1-169

Implement Measures as Outlined in the WSR. A major flaw in the U.S. Coast Guard's (USCG) Waterway Suitability Assessment (WSA) process was that the WSA Validation Committee failed to include members from the cities of Knappa, Astoria, Warrenton, and Clatsop County. Without representation from the host county and local fire and law enforcement officials from the affected communities, it is difficult to adequately assess safety and security issues in this region. Missing is critical safety and security input from local fire and law enforcement experts giving credibility to the USCG WSA process and the final recommendations to FERC in the Waterway Suitability Report.

SA1-170

FERC should require USCG to reconvene a new WSA Validation Committee for the proposed Bradwood Landing Import Terminal with the appropriate local, county, and state emergency response officials to review and discuss appropriate safety and security measures as a result of the new modeling completed for the larger (260,000 cm) LNG vessels. We expect the three zones of concern would likely be expanded for the larger vessels. This could have significant impacts for the city of Astoria. Reconvening the USCG WSA in light of this new information is both timely and protects the integrity of the WSA process.

Recommended Condition Language - As a condition of the permit, USCG will reconvene a new WSA Validation Committee for the proposed Bradwood Landing Import Terminal with

SA1-166

See our response to comment SA1-165. We have included a recommendation that NorthernStar file a final transportation plan, formulated in consultation with Clatsop County and ODOT, that pertains to proposed modifications to Highway 30 and Clifton Road.

SA1-167

We have not added a discussion of the Wauna slide feature and the associated Clatsop Crest to section 4.9. At this time, no cultural resources related to those geological features have been identified within the APE. If, during the course of future investigations for this project, cultural resources are found at those geological features, the FERC would assess their eligibility for nomination to the NRHP, and, if any of the sites are eligible, would consult with the appropriate parties about the resolution of adverse effects. As discussed in section 4.9.2, NorthernStar would implement the measures in its Discovery Plan if any previously unidentified cultural resources are encountered during construction.

SA1-168

If authorized, NorthernStar would have to comply with 49 CFR 193. Section 193.2509(b)(2) requires NorthernStar to have procedures for dealing with an emergency which includes notification of local officials.

SA1-169

The WSA Validation Committee members included appropriate stakeholders that were selected based on their technical expertise. There is no requirement for local government representatives and in fact, including local government units might constitute a conflict of interest. Input from local fire and law enforcement experts was obtained during the WSA process through other measures.

SA1-170

The WSA for the Bradwood Landing Project took into account larger LNG vessels. We recommend in section 4.11.5.5 that NorthernStar annually review and update their WSA to reflect changing conditions at which time the Coast Guard would review and validate.

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SA1-170 cont'd the appropriate local, county, and state emergency response officials to review and discuss appropriate safety and security measures as a result of the new modeling completed for the larger (260,000 cm) LNG vessels.

Northern Star will revise the 38 miles transit maps for the three zones of concern to include an increase based on modeling results. Northern Star will provide an updated list of safety and security resource commitments for review and discussion by the WSA Validation Committee.

Northern Star will implement measures as outlined in the revised WSR. (ODOE)

Section 4.11.6 Emergency Response and Evacuation Planning and FERC Staff Recommended Mitigation #62 (p. 5-29 to 5-30)

SA1-171 **Bradwood Emergency Response Plan.** A major flaw in the draft emergency response plan (ERP) for the proposed Bradwood Landing LNG terminal is that it assumes critical emergency response assets are already committed, in place, and approved by state and local emergency response organizations. Without Northern Star's commitment to provide this region the necessary resources, the state and the Federal Energy Regulatory Commission (FERC) are unable to conduct a thorough evaluation of Bradwood's draft ERP to ensure the plan is adequate and can be effectively implemented to protect the health and safety of Oregonians in the event of an LNG mishap at Bradwood. Specific problems include:

➤ 1 - Local emergency responders currently lack the resources to launch a timely and effective response to a Bradwood Landing emergency. Significant portions of the draft Bradwood ERP cannot currently be implemented, due to lack of resources and insufficient commitments from Northern Star. This includes the incident command structure and the fire response portions of the draft Bradwood ERP.

FERC should require Northern Star to provide fire resources to first responders that meet state and National Fire Protection Association (NFPA) standards for a four -minute response to a 1st Alarm Fire at an industrial facility. In addition, FERC should acknowledge Northern Star's commitment to provide an onsite fire brigade, which will supplement, but not replace or offset, the offsite response. Oregon expects that the fire brigade would operate consistent with NFPA standards.

Recommended Condition Language - As a condition of the permit, Northern Star will meet state and NFPA standards for response to an industrial facility fire. This includes providing adequate fire resources to ensure a four-minute response to a 1st Alarm Fire for an industrial facility as shown in Table 7.2.1.

Table 7.2.1 - - Required Resources for a "Medium-Hazard Occupancies" Response. This includes apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or fire-fighting forces.

- At least 3 pumpers
- 1 ladder truck (or combination apparatus with equivalent capabilities)
- Other specialized apparatus as may be needed or available
- No fewer than 16 fire fighters, 1 chief officer, 1 safety officer, and a Rapid Intervention Team (4 - 5 fire fighters on standby at event scene).

SA1-171 Development and finalization of an ERP and Cost Sharing Plan are not required prior to completion of the final EIS. However, NorthernStar has developed these plans and they are currently undergoing review. See response to SA1-21

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Note: Refer to Volume 1 - NFPA Handbook, 19th Edition, Chapter 2, Section 7, Organizing for Fire and Rescue Services

Northern Star will work with state and local emergency response organizations to determine the appropriate location and facility design for the fire station and placement of personnel and equipment resources. Upon commencement of this work, Northern Star will provide a comprehensive resource list of fire resources and placement with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

- 2 - While the U.S. Coast Guard has broad authority over the waterways, it lacks resources to respond to LNG vessel fires traveling the 38 mile channel to the Bradwood Landing Import Terminal. The Coast Guard issued its Waterway Suitability Report approving LNG vessel transit for Bradwood Landing without resolving this critical issue leaving Oregon citizens along the 38 miles channel vulnerable to potential vessel mishaps. See "Concern 3" for details concerning the Coast Guard's Waterway Suitability Assessment process.

In addition, Northern Star's draft Bradwood ERP fails to address the issue adequately. In the draft ERP, Northern Star proposes a three tiered response to in-transit fire fighting.

Tier 1: Local Fire Agencies - Local fire agencies are to protect citizens and waterfront property from vessel fire only.

Concern - Stretched resources to protect citizens and waterfront property along the 38 mile channel and no ability to support shipboard fires.

Tier 2: Maritime Fire & Safety Association (MFSA) - The MFSA has 24 members made up of public and private companies including fire agencies, ports, and private companies along the Lower Columbia and Willamette Rivers. The purpose is to set forth a comprehensive system which ensures fast, well-coordinated and effective response to ship fire incidents in the Lower Columbia region.

Concern - MFSA is not a viable option for Bradwood Landing's proposed Tier 2 response to shipboard fires. In this region, any available MFSA resources would be exhausted in the Tier 1 response because fire resources are so limited. Many local fire agencies also choose not to be a MFSA member. Only members can benefit from MFSA resources both in personnel and equipment when available. MFSA member agencies can only respond to shipboard fires that are docked at a port. It is generally agreed that in this region that it would be unlikely for any port to allow a burning vessel to approach their docks.

It is also important to recognize that MFSA resources belong to the respective member fire agencies. This means any resources Northern Star provides to the MFSA cannot be dedicated to Bradwood Landing emergencies alone. Also, response and support from MFSA members is optional. Both fire fighters and equipment may be busy elsewhere and unavailable when needed. As a result, the MFSA is not a reliable system to support Bradwood Landing's Tier 2 response.

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Tier 3: Contractors Companies - Northern Star proposes contacting with private agencies out of Portland to provide the Tier 3 response to shipboard fires in the channel.

Concern - Significant delay in response.

FERC should require Northern Star to develop a shipboard fire response plan that can actually be implemented in the region for review and approval by the Coast Guard, state, and local agencies. This includes requiring Northern Star to provide the necessary resources to implement the plan.

Recommended Condition Language - As a condition of the permit, Northern Star will work with the U.S. Coast Guard, state, and local emergency response agencies to develop a detailed response plan to effectively address ship board fires along the 38 mile channel. This includes re-considering Tiers 1, 2, and 3 to ensure adequate resources are committed and dedicated for response to Bradwood Landing emergencies only. Upon commencement of this work, Northern Star will provide a comprehensive resource list for response to shipboard fires with Coast Guard, state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

- ▶ 3 - The draft Bradwood ERP fails to address response actions for fighting forest and brush fires as a result of a facility emergency. The proposed site is surrounded by forest timber. Without a detailed plan to identify possible scenarios and proposed response actions and coordination to fight such a blaze, the state and FERC are not able to determine whether the region has adequate resources to contain a forest or brush fire as a result of a Bradwood mishap. Additional fire resources may be needed in addition to the resources required for response to an industrial facility fire discussed in problem 1.

FERC should require Northern Star to work with state and local emergency response organizations to develop a detailed draft plan in response forest and brush fires as a result of a Bradwood Landing emergency. This will allow state and local emergency responders to assess whether additional fire resources are needed in response to forest and brush fires.

Recommended Condition Language - As a condition of the permit, Northern Star will provide a detailed draft plan for response to forest and brush fires as a result of a Bradwood Landing emergency for state and local review and approval. This includes information on likely scenarios, response actions, and resources needed to implement response actions. Upon commencement of this work, Northern Star will provide a comprehensive resource list for response to forest and brush fires with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

See also Oregon Department of Forestry (ODF) comments Section 4.8.3.6, Emergency Services and Section 2.8.2.2, Emergency Response Plan. ODF has oversight for rural fire protection districts and responds to forest and brush fires on private, rural, and state owned lands.

- ▶ 4 - While Northern Star has provided verbal commitment to provide a public warning system, no detailed description or proposal has been submitted to the state and local emergency response organizations for review and approval. Without a proposed plan for a

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public warning system in the region, it is impossible for the state and FERC to determine whether the draft Bradwood Landing ERP can be implemented effectively to provide timely notifications to Oregonians living, recreating, and working near Bradwood Landing or along the 38 mile transit route in the event of an LNG incident.

FERC should require Northern Star to provide a draft detailed plan for a public warning system for the region. This will ensure that FERC and the state have adequate information to evaluate the effectiveness of the procedures for alerting and notifying the public of an LNG incident in the draft Bradwood Landing ERP.

Recommended Condition Language - As a condition of the permit, Northern Star will provide a public warning system for the region that includes the following alert and notifications systems, but is not limited to:

- Reverse 911 (24-Port) System for Clatsop County - The system will include the following capabilities: high volume calling; compatible with major mapping systems; E911 data ready; multiple devices (recorded voice messages, text messages to wireless receivers, and digital pages); geo-dimensional calling; full networking capabilities; off-site back-up notification; remote launching capability; and other capabilities as appropriate.
- Sirens - Outdoor siren system throughout the entire 38 miles transit route covering all three zones of concern up to the Bradwood Landing Terminal. The system will include the following capabilities: multiple high intensity warning signals; live and digital voice messaging with flat frequency response from 200 - 2000 Hz for clear voice reproduction; 360-degree coverage with no sound variation in the horizontal plane (106 to 125 dBc at 100ft/30m); continued emergency operation regardless of primary power outages, and other capabilities as appropriate. Northern Star will include a map of the proposed number and locations of sirens showing the coverage area of each proposed siren for state and local review and approval.
- Reader Boards - Reader boards located along Highway 101 and Highway 30 in Clatsop County to provide event information, direct traffic, and facilitate evacuations. Northern Star will include a map of the proposed number and locations of reader boards for state and county approval. Reader board specifications must be consistent with the Oregon Department of Transportation reader boards located throughout the state.

Upon commencement of this work, Northern Star will provide a comprehensive resource list for a public warning system with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

5 - While Northern Star has provided a verbal commitment to provide a remote gas detection system for the region, no plans have been submitted for state and local review and approval. Without a proposed plan for offsite gas detection, the state and FERC are unable to determine whether the draft Bradwood Landing ERP can effectively warn emergency responders of an LNG release in high risk and populated areas along the 38 mile transit route.

FERC should require Northern Star to provide a draft detailed plan for a remote gas detection system for the region. This will ensure that FERC and the state have adequate information to

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evaluate the effectiveness of the remote gas detection system to detect LNG concentrations threatening high risk or populated areas in the draft Bradwood Landing ERP.

Recommended Condition Language - As a condition of the permit, Northern Star will provide a draft detailed plan for a remote gas detection system for the region. The proposed remote gas detection system plan will include information about the following systems, but is not limited to:

- Fixed Gas Detectors - Fixed gas detectors will be provided in all high risk and high population areas along the entire 38 mile transit route in Clatsop County. Fixed gas detector capabilities will include remote wireless operations and the ability to provide readouts in multiple locations. Northern Star will include a map of the proposed fixed gas detector locations along the 38 mile transit route for state and local review and approval. Fixed gas detector locations include, but are not limited to:

Oregon:

Hammond, Tansy Point, Warrenton, Astoria (3 detectors), Tongue Point, Settler Point, Long Island, Knappa, and Puget Island (3 detectors).

Washington:

Ruby Island, Ilwaco, (2 detectors total - 1 at airport), Chinook, Elliot Point, Middle Valley, and Cathlamet.

- Portable Gas Detectors - Northern Star will provide three layers of portable gas detectors.
1) All emergency responder vehicles in the region will be provided a methane gas detector. 2) Methane gas and oxygen meters will be assigned to all fire trucks, and 3) Multi-meters will be provided to hazardous materials responders.

Northern Star will include a list with a breakdown of all proposed fixed and portable gas detectors and designated locations for the equipment for state and local review. Upon commencement of this work, Northern Star will provide a comprehensive resource list for a remote gas detection system with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

- > 6 - While Northern Star has provided a verbal commitment to develop an interoperable communications system, no plans have been submitted for state and local review and approval. Without a proposed plan for emergency response communications, the state and FERC are unable to determine whether the draft Bradwood ERP is adequate and can be effectively implemented to ensure interoperable communications across jurisdictions and between all responding agencies throughout the duration of an LNG emergency at the facility or along the 38 mile transit route.

FERC should require Northern Star to provide a draft detailed plan for an interoperable communications system for the region. This will ensure that FERC and the state have adequate information to evaluate the effectiveness of the communications plan in the draft Bradwood Landing ERP.

Recommended Condition Language - As a condition of the permit, Northern Star will provide a draft detailed plan for an interoperable communications system for the region. The

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proposed interoperable communications system plan will include information about the following systems, but is not limited to:

- Repeaters and Cell Towers - Specify the number of repeaters and cell towers needed to ensure uninterrupted cell and radio coverage along the 38 miles transit route to the Bradwood Landing facility, covering all three zones of concern. Include a map of the proposed repeater and cell tower locations showing the coverage area of each proposed repeater and cell tower location for state and local review and approval.
- Incident Command - Specify the number and locations of intrinsically safe handheld radios to be provided to fire, law enforcement, and other responders to a Bradwood Landing mishap. Include information on FCC licensing requirements and proposed frequencies, antenna system, base station console, and other pertinent information.
- Emergency Operations Centers - Multiple federal, state, and local emergency operations centers (EOCs) may be activated in response to a Bradwood Landing mishap. Emergency Operations Centers support the incident command. Specify the primary and redundant backup communications systems to be used to ensure uninterrupted communications between Bradwood Landing and the federal, state, and local EOCs. This includes, but is not limited to a dedicated phone system, video teleconference system, satellite phones, Internet, e-mail, and other technology as appropriate.

Upon commencement of this work, Northern Star will provide a comprehensive resource list for an interoperable communications system with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

- 7 - The Clatsop County EOC is currently located at 355 Seventh Street in Astoria at the Clatsop County Sheriff's Office. The Clatsop County EOC is within zone 1, the highest impact zone. The potential exists that an LNG vessel mishap while passing through the Astoria waterfront could directly impact county response operations from the EOC. In addition, the current Clatsop County EOC is neither large enough nor equipped to support affected federal, state, and local emergency organizations reporting to Clatsop County to respond collectively to an LNG emergency at Bradwood. Northern Star has made no commitment to relocate or expand, modify and equip the existing Clatsop County EOC to support an LNG response to Bradwood Landing.

FERC should require Northern Star to work with the Clatsop County Sheriff's Office to identify an alternate EOC outside of the three zones of concern. This includes requiring Northern Star to equip the pre-designated alternate EOC with the same capabilities as the primary Clatsop County EOC. This will ensure a seamless transition to the alternate EOC if a LNG mishap prevents the use of the primary Clatsop County EOC. FERC should also require Northern Star to expand the existing primary Clatsop County EOC to ensure sufficient work space for affected federal, state, and local emergency responders as well as Bradwood Landing personnel reporting to Clatsop County to respond collectively to an LNG emergency at Bradwood Landing.

Recommended Condition Language - Alternate Clatsop County EOC - As a condition of the permit, Northern Star will work with the Clatsop County Sheriff's Office to identify a

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location for an alternate EOC outside of the three zones of concern. Northern Star will ensure the pre-designated alternate EOC has sufficient work space to accommodate affected federal, state, and local emergency responders reporting to Clatsop County to respond collectively to an LNG emergency at Bradwood Landing. This includes equipping the pre-designated alternate EOC with the same capabilities as the primary Clatsop County EOC to ensure a seamless transition to the alternate EOC if a LNG mishap prevents the use of the primary Clatsop County EOC. Pre-designating and equipping an alternate EOC ensures Clatsop County can maintain direction and control of county protective actions and decisions, providing a sustained response throughout the duration of a Bradwood event.

Primary Clatsop County EOC - Also as a condition of the permit, Northern Star will expand, modify, and equip the existing Clatsop County EOC located at 355 Seventh Street in Astoria at the Clatsop County Sheriff's Office to ensure sufficient work space to accommodate affected federal, state, and local emergency responders reporting to Clatsop County to respond collectively to an LNG emergency at Bradwood Landing.

Northern Star will work with the Clatsop County Sheriff's Office to determine the appropriate location, design and layout, and equipping of the primary and alternate Clatsop County EOCs for response to a Bradwood emergency. Upon commencement of this work, Northern Star will provide a comprehensive resource list for both facilities with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

- 8 - Clatsop County does not have a pre-designated Joint Information Center (JIC) to coordinate and release event information to the news media and the public in the event of a Bradwood Landing emergency. The purpose of the JIC is to ensure Bradwood and all federal, state, and local agencies responding to the event provide a consistent message to news media and the public. The JIC will be the location for news conferences; coordinating news releases from responding federal, state, and local jurisdictions; addressing public and media inquiries; and other public information activities as appropriate. Failure to have a central clearing house to manage the receipt and dissemination of emergency information may result in misinformation, inconsistent information, and unconfirmed information getting out to the public and news media creating public panic, confusion, and mistrust.

FERC should require Northern Star to provide a Joint Information Center in Clatsop County outside the three zones of concern. Providing a JIC ensures terminal operators and all federal, state, and local response agencies impacted by a Bradwood Landing emergency can provide a consistent message to the news media and public.

Recommended Condition Language - As a condition of the permit, Northern Star will designate and equip a JIC in Clatsop County outside of the three zones of concern. The JIC will provide adequate work space and access to communications and information systems to support public information officers from Bradwood as well as federal, state, and local public information officers responding to the event. The JIC will also be designed to accommodate news conferences and phone teams addressing public concerns.

Northern Star will work with state and local emergency response organizations to determine the appropriate location, design and layout, and equipping the facility for response to a

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Bradwood emergency. Upon commencement of this work, Northern Star will provide a comprehensive resource list for the Clatsop County JIC with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

- 9 - While Northern Star has provided a verbal commitment to provide LNG training to first responders, county officials, and state officials in the region, no plans have been submitted for state and local review and approval. Without a proposed training plan, the state and locals are unable to determine whether Northern Star's training program is adequate for preparing this region's emergency responders and decision-makers for an LNG emergency at Bradwood.

FERC should require Northern Star to provide a draft detailed training plan for state and local review and approval. This will help state and local emergency response organizations determine whether Northern Star's training program is adequate for preparing this region for an LNG emergency at Bradwood.

Recommended Condition Language - As a condition of the permit, Northern Star will provide a draft detailed training plan designed to meet the specific needs of this region's first responders and decision-makers. This includes, but is not limited to:

- Construction of an LNG Fire Training Center in Clatsop County - It is likely more cost effective to build an LNG training facility locally and bring in instructors from Texas A & M or other accredited training institutions than to send fire fighters to training in Texas or elsewhere in the country. Northern Star will work with state and local emergency responders to determine location and facility design and layout.
- Type of training to include, but is not limited to: 1) Incident Command System; 2) facility security; 3) oil & hazmat spill response; 4) LNG for fire fighters, emergency responders, and law enforcement; 5) marine fire fighting; 6) general LNG training; 7) advanced LNG fire fighting; 8) hospital training; 9) tabletops, drill, and exercises and other training as appropriate.
- Schedule of training detailing the type of training, required training hours, and number of anticipated trainees from Bradwood Landing, state, and local agencies.

Northern Star will provide the detailed draft training plan for state and local review and approval. Northern Star will also provide this plan with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review.

- 10 - Clatsop County does not have adequate personnel nor funding to develop and maintain the Clatsop County Emergency Response Plan or Annex for the Bradwood Landing Import Terminal. Northern Star has made no commitment to provide funding for a Clatsop County LNG Planner.

FERC should require Northern Star to provide the Clatsop County Sheriff's Office with funding for a County LNG Planner/Fire Response Coordinator. This will ensure Clatsop County can develop and maintain the county's emergency plan for Bradwood Landing.

Recommended Condition Language - As a condition of the permit, Northern Star will provide funding to the Clatsop County Sheriff's Office to hire a full-time County LNG

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Planner & Fire Response Coordinator. The County LNG Planner & Fire Response Coordinator will work with first responders to prepare for LNG vessel arrivals and departures, work with first responders, the state, and Northern Star to conduct plan review, coordinate training, exercises, public outreach, and perform other LNG emergency preparedness activities as appropriate.

- 11 - While Northern Star has discussed with hospital officials and local emergency responders regarding the region's capabilities to transport burn victims to Columbia Memorial Hospital, triage burn multiple victims, and airlift burn patients to the Oregon Burn Center at Legacy Memorial Hospital in Portland, no written commitment has been made and submitted to state and local officials for review and approval. Without a draft detailed plan to address burn victims, the state and FERC are unable to determine whether the region's medical services sector are sufficiently equipped, have the necessary resources, and are prepared to receive and treat burn victims from a Bradwood Landing mishap.

FERC should require Northern Star to provide a draft detailed plan for state and local review and approval. This will help state and local emergency response organizations determine whether the region has sufficient capabilities at Columbia Memorial Hospital to triage, provide treatment, and transport burn victims to a nearby burn center if needed.

Recommended Condition Language - As a condition of the permit, Northern Star will work with Columbia Memorial Hospital to draft a detailed draft plan to address burn victims as a result of a Bradwood emergency for state and local review and approval. The plan will be consistent with the capabilities outlined in the Burn Mass Casualty Plan for the Oregon Burn Center at Legacy Emanuel Hospital. Specifically, Northern Star will provide Columbia Memorial Hospital with the personnel and resources necessary to implement the Burn Mass Casualty Plan's 72 Hour Burn Plan - Care of Burn Patients in a Non-Burn Hospital. This includes, but is not limited to:

- Identifying resources and procedures necessary for treating burn victims if immediate transfer to a regional burn center is not feasible. This includes ongoing resuscitation and care.
- Identify medical supplies, pharmaceuticals, and equipment needed to support a triage station capable of treating 5 victims with severe burns. This includes pre-packed medical resources.
- Communications capabilities including 800 mhz trunked radio and web-based client/server applications to coordinate communications between the event scene and the Columbia Memorial Hospital and serve as the patient information tracking mechanism in events involving multiple burn victims.
- Staffing requirements for care of burn patients in a non-burn hospital.

Upon commencement of this work, Northern Star will provide a comprehensive resource list for Columbia Memorial Hospital with state and local signature approval with the draft Bradwood ERP to be submitted to FERC for final review. (ODOE)

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Section 4.11.6, and FERC Staff Recommended Mitigation #63 (p. 5-30)

SA1-172 **Bradwood Emergency Response Plan Cost Sharing Plan** While the site meets the national security requirements as a viable location for an LNG import terminal, like all rural communities, it lacks the basic safety and security infrastructure required to protect public health and safety in the event of an LNG emergency.

FERC should require Northern Star to pay all project specific safety, security, and emergency preparedness and management costs imposed on the state and local agencies as a result of the proposed Bradwood Landing Import Terminal. This will ensure the state and local emergency response organizations have the ability to develop and maintain a level of readiness to ensure the protection of public health and safety in the event of a Bradwood emergency.

Recommended Condition Language - As a condition of the permit, Northern Star will cover all project specific safety, security, and emergency preparedness and management costs imposed on the state and local emergency response organizations as a result of the proposed Bradwood Landing Import Terminal. (ODOE)

Section 4.12 Cumulative Impacts

SA1-173 1. The section is exceedingly short and dismissive of impacts to water quality. The Columbia River is classified as "water quality limited" under Section 303(d) of the Clean Water Act, for the parameters of Temperature, DDE (DDT metabolite), Polychlorinated biphenyls (PCBs), and Arsenic. An EPA approved TMDL has been developed for Dioxin and Total Dissolved Gas parameters. Other parameters listed for potential concern include Cadmium, Copper, Iron, Lead, Mercury, Nickel, Silver, Tributyltin, Zinc, Aldrin, Alpha-BNC, Benzo(a)anthracene, Benzo(g, h, i)perylene, Bhc, Chlordane, Chrysene, Cyanide, DDD, DDT, Dieldrin; Endrin, Hexavalent Chromium, pH, Phenol, Polynuclear Aromatic Hydrocarbons (PAHs), Pyrene, and Radionuclides. This status requires particular attention so as not to allow exacerbation of listed parameters and further impairment of water quality. FERC and the applicant take the converse opinion in stating that because the water is already impaired, further cumulative impacts are not important. This is completely contrary to DEQ's mission (and TMDL development) and EPA's National Priority strategies, which limit actions that impair water quality and implement actions to reverse the impairments.

SA1-174 2. Cumulative effects to water quality are not adequately identified or analyzed. Although additional dredging is identified as a potentially significant cumulative effect, it is dismissed as not occurring. The timelines and duration of dredging that are identified are incorrect. For instance, channel deepening by the Corps will not be completed in the subject reach by 2007. Renewal of 5 year authorizations to continue the deepening are currently being considered by DEQ and the Washington Department of Ecology and total project duration or completion is not currently known. Multiple other dredging projects are permitted and considered for permit in the Columbia River estuary (from the Mouth to Bonneville Dam). These include Corps actions, sand/gravel mining operations, and port and marina maintenance dredging. Although some of these actions are considered minor, in total they are of significant amounts and the impacts are not well understood. The cumulative impacts of these actions need to be thoroughly evaluated and addressed in the EIS. (ODEQ)

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SA1-172 See our response to comment SA1-21

SA1-173 We believe the analysis of cumulative impacts on water quality have been addressed adequately in section 4.12. Potential cumulative impacts on water quality are recognized, but not considered significant due to implementation of BMPs. In addition, NorthernStar has committed to providing an overall significant net benefit to the environment of the lower Columbia River ecosystem by implementation of its Compensatory Mitigation Plan and SEI. Directions for accessing NorthernStar's Compensatory Mitigation Plan via the eLibrary can be found in the response to comment PM6-11.

SA1-174 Phase 3 of the COE's Columbia River Improvement Project is expected to be completed April 2008. Section 4.12 has been updated to reflect the updated COE schedule. The revised section also includes data about the proposed dredging for the Oregon LNG Project, which has not yet been authorized, and smaller maintenance dredging projects at the Port of Astoria, Port of Ilwaco, and at the mouth of the Skipanon River.

Section 5.0 Conclusions and Recommendations

Section 5.1.8 Socioeconomics (p. 5-11)

- SA1-175 This project will bring in a new supply of natural gas to the region and country. This fact is not addressed in the EIS. The project will have connections to PGE production facilities at Port Westward and to Georgia Pacific Wauna Mill. These connections could prove valuable to those facilities over time as energy cost escalate. This is not mentioned in the EIS but may have significant long term positive impacts for GP Wauna Mill and Ratepayers served by PGE. This of course depends on the details of the contracts that will be executed by the companies involved.
- SA1-176 There is no needs assessment associated with this project. Knowing the impact of this new natural gas source on the regional energy situation would be helpful in determining if the project will benefit industries in the Pacific Northwest and specifically Oregon. Such an analysis would assist us greatly in developing a policy towards LNG terminals locating in the state.
- SA1-177 This project will increase the capacity of ship piloting and tug capacity on the river to the benefit of all shipping operations. New bar and river pilots and tugboats will be added as a result of this project.
- Based on current tax rates, property tax revenue for Clatsop County and special districts would increase by 92.4 percent upon completion of the LNG terminal. This is a very positive affect locally.
- The project will generate increased rail traffic during construction and improve a portion of the rail through a required realignment at the project site. Currently, there are few customers using rail services west of Clatskanie.
- The project will generate 50 FTEs and will operate 24/7. Average salary at the terminal is estimated at \$60,000/yr. based on prevailing wages. The project will also require an additional 15 FTEs for security.
- Construction Jobs will average 331 per year over three years with an expected peak of 506. The company has committed to hiring at prevailing wages for all construction jobs.
- The Company has already aligned itself with the community college(s) to provide training for certain construction and permanent jobs at the site. They are currently subsidizing a welding class at Clatsop Community College directed at non traditional workforce participants.
- The method used to measure economic impacts using IMPLAN appears to be reasonable and the conclusions also seem realistic.
- The area has been able to absorb the impact of having large construction projects being built in the rural region. Projects such as PGE Port Westward and Cascade Grain along with Lines 6 and

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SA1-175 Please read sections 1.1 and 2.1.4 of the EIS.

SA1-176 We discuss the need for additional sources of natural gas in section 1.0.

SA1-177 Currently there are no customers and no rail traffic on the PWRR west of Clatskanie.

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SA1-177 cont'd 7 TAD paper towel machines at Georgia Pacific will be completed before the construction starts at Bradwood Landing. The workforce will be available for construction. (ODECD)

Section 5.1.3 Water Resources (p. 5-4, para. 2)

SA1-178 "NFMS" should be changed to "NMFS". (ODFW)

Section 5.1.3, Water Resources (p. 5-3)

SA1-179 The water uses mentioned are not wholly authorized at this time. References to the status of applications with OWRD are not accurate. Limited Licenses for the temporary use of water have been issued for hydrostatic testing of the tanks and pipeline, and the dredging of the turning basin. These limited licenses do not allow use of water for other construction purposes. Applications for permits for permanent use of water have been submitted. These applications propose to use water for fire protection and industrial manufacturing. These permit applications have yet to be authorized. Limited license short term authorizations have been issued, while permanent permits have been applied for but not granted at this time. Construction water authorization has not been obtained at this time.

A limited License application for construction water would need to be submitted or wait to see if permits are granted and use industrial manufacturing water under a permit. In any event, authorization to use water will be required before construction may begin. This should take place before any FERC Certification. (OWRD)

Section 5.0, 5.1.12 Alternatives

SA1-180 Conclusions related to alternatives are not supported by adequate criteria, relevant data and information, a rigorous analysis and a clear explanation about why the evidence and information supports the conclusion. Alternatives are dismissed or not considered based on conclusions that do not adequately address basic need and effects issues. All of the proposed projects should be carefully analyzed against a common set of criteria to determine the best project. This analysis should consider the need for the terminal and pipeline infrastructure based on demonstrated long term planning and an analysis of which project can most economically and efficiently meet regional/national needs with the least long term environmental and social consequences. (DLCD/OCMP)

COMMENTS ON APPENDICES

Appendix B

SA1-181 Wetland Delineation for Pipeline Route. Sheet 1 of 11, Appendix B: Is "minor route variation included in delineation for the pipeline?"

Prior to any construction activity, an on-site wetland delineation, and delineation concurrence by DSL, of entire approved pipeline route is needed. (DSL)

Appendix G and DEIS p. 4-151, last paragraphs:

SA1-182 1. Compensatory Wetlands Mitigation on Svensen Island. Lower Svensen Island Wetland Delineation and use within the Compensatory Wetlands Mitigation plan. It is not clear if this area is proposed for enhancement credit.

SA1-178 Section 5.1.3 has been revised to correct this typographic error.

SA1-179 Issuance of the EIS does not imply that pending permit applications are approved. See also our responses to comments PM6-94, SA1-31, and LA12-3.

SA1-180 The intent of the alternatives analysis is not to compare the proposed LNG projects in the region and pick the "best" project. The FERC's evaluation criteria for the alternatives analysis is described in the introduction to section 3.1.

SA1-181 The final proposed route has been completely delineated for wetlands, including minor route variations.

SA1-182 See our response to comment FA3-3.

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SA1-182 cont'd If Lower Svensen Island is proposed as part of Compensatory Wetlands Mitigation site, a wetland delineation may be needed. The wetland delineation for Middle Svensen Island is currently being reviewed by DSL. (DSL)

SA1-183 2. The Compensatory Wetlands Mitigation ratios listed are not in accordance with the Estuarine Mitigation rules. See OAR 141-085-0256.
Additional detail on the placement of fill material for berm construction around existing home site. If this fill material is within wetlands, the total acreage needs to be accounted for and included as part of Compensatory Wetlands Mitigation. (DEIS, p. 4-152)
It is not clear whether the culverts, tidegate and other removal/fill activity being placed within the Compensatory Wetlands Mitigation site are accounted for as fill and removal activity on the JPA.
At the end of monitoring period for the Compensatory Wetlands Mitigation site, a wetland delineation will be required. This will be at least a 10-year monitoring period with annual reports through year 5. Temporary impact monitoring reports for 5 years.
The permittee will be responsible for submitting yearly monitoring reports on the Compensatory Mitigation and Compensatory Wetlands Mitigation plans.
Conservation easement (or other protection instrument) for the Compensatory Mitigation / Compensatory Wetlands Mitigation sites will need to be in place prior to any construction activity within wetlands or waters. Also, long-term responsible party needs to be identified and a financial security instrument is needed prior to authorization (p.72) (DSL)

SA1-184 3. Compensatory Wetlands Mitigation Plan, p. 13, also page 18-20 and 67 of Compensatory Wetlands Mitigation plan:
Terminal and Pipeline Temporary Impacts. The DEIS states that there are 15 acres of temporary impact at terminal and 98 acres with the pipeline, and p. 13 of the Compensatory Wetlands Mitigation plan states that terminal has up to 1.5 acres and pipeline has up to 75.64 acre of temporary impact. Also, the permanent impacts are not consistent within the DEIS (12.9) and Compensatory Wetlands Mitigation plan (13.7).
Prior to construction activity, the wetland mitigation site will need to be constructed either prior to or concurrent with the wetland/waters impacts authorized within the Removal-Fill Permit. (DSL)

Appendix G, Revised Preliminary Design Draft Mitigation Plan Feb 07¹

General Comments

SA1-185 The terms "weeds" and "noxious weeds" are sometimes used throughout the mitigation plan. Suggest changing the wording to "non-native invasive vegetation" or, at least be consistent with terminology throughout the plan.

The vegetation descriptions include several non-native invasive plant species (e.g., reed canary grass, yellow flag iris, Himalayan blackberry). Some of these species are acknowledged as non-native invasive species, but others are not. ODFW suggests providing clarification identifying all non-native invasive species.

¹ These comments on Appendix G of the mitigation plan were provided by the Oregon Department of Fish and Wildlife.

SA1-183 See our response to comment FA2-10.

SA1-184 See our response to FA3-1.

SA1-185 See our response to comment FA2-10.

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SA1-185
cont'd

Page 13, Section 2.1 - Oregon Wetland Mitigation

General Comment – The focus of the mitigation discussion is on aquatic resource values for fish. Discussion on wildlife issues is generally weak. Wetland/waterway habitats also provide habitat values for wildlife, but these are not well recognized. Later in Section 3.0 (Wildlife Mitigation) there is a statement about how mitigation for wildlife habitat losses caused by impacts to wetland/waterway habitats are addressed in Section 2.1, but ODFW's Fish and Wildlife Habitat Mitigation Policy does not appear to be specifically addressed in Section 2.1; the focus is on the Army Corps of Engineers/Oregon Department of State Lands mitigation requirements.

Page 14, Section 2.1.2

Mitigation goals and objectives should apply not only to "endangered species", and it is unclear how this term is defined in this context. Mitigation should apply to state and federal threatened and endangered species as well as to State Sensitive Species and other species of concern.

Page 24, first paragraph after bullets

This paragraph provides an example of how wildlife habitat values are not thoroughly addressed in this Section 2.1. In the sentence about presence of large wood debris around the perimeter of the log pond, there is no mention that the logs also provide wildlife value/benefits.

Page 26, Section G

This section provides an example where one species (Scott's broom) is recognized as a non-native invasive species and where others (yellow flag iris, purple loosestrife, and reed canarygrass) are not.

Page 28, Section I Existing Fish and Wildlife

This section needs to clarify that nutria is a non-native, invasive species. The impacted wetland also likely provides habitat for riparian songbirds and various small mammals (e.g., mink).

Page 40, Section 2.1.4 Site Selection

There is no mention of restoration of wildlife habitat or ODFW's Fish and Wildlife Habitat Mitigation Policy as being even minor driving factors in mitigation site selection.

Page 49, Section G, first paragraph, last sentence

What about provision of wildlife habitat? Wildlife habitat is a function in the Hydrogeomorphic Assessment (HGM) and Section 3.0 states that mitigation for wildlife-related wetland impacts is addressed in Section 2.0.

Page 53, third bullet

What will be done with the roots and stumps that would be removed in areas of the pipe trench? ODFW suggests using this material on-site or on mitigation sites for wildlife habitat enhancement (e.g., brush piles for wildlife cover).

Page 59, Herbivore Control

ODFW suggests trapping/removal of nutria to help control herbivory.

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Bradwood Landing Natural Gas Importation Terminal
Draft Environmental Impact Statement Comments

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SA1-185
cont'd

Page 59, Section 2.1.7

General Comment: Planned restoration activities will also benefit wildlife, but this is not thoroughly addressed. For example, this section could discuss how restored off-channel habitat, large wood, and restored tidal influence will benefit wildlife (e.g., waterfowl, shore birds, secretive marsh birds, etc.).

Pages 60, 105 Large wood features

- (1) The large woody debris (LWD) discussion lacks information/detail associated with the six proposed structures. Figures are referenced but not provided as part of the document. The document should at least contain a "typical" structure detail listing numbers of key large wood pieces, species of wood (conifer), size of key pieces, and general complex design. There needs to be at least some minimum key size and composition criteria for evaluation.
- (2) The mitigation plan calls for structures to be placed in tidal channels. Consideration should be given to placing some additional structure(s) on the flats that would be used by fish during high tide inundation periods. Productivity of the flats would likely be increased with addition of LWD in these areas also. Some of the large wood slated for removal from the terminal site may be suitable for these additional structures, if not being otherwise used.

Page 61, Wildlife Habitat Feature Creation

This section does not adequately describe how lost wildlife habitat functions will be restored.

Page 68, Section L Construction Specifications

This section should include considerations of adjacent wildlife habitat values e.g., amend this section to read "...construction of the mitigation site to ensure that the site is built without impacting adjacent fish *and* wildlife habitat..."

Page 68, Section 2.1.8

Goals 1 and 2 state that native seed would be applied to bare soil, yet Page 58 states that Re-Green would be used for short-term erosion control. Please clarify and make this consistent.

Page 83, Table 3.1

Agriculture/pasture/poplar farm habitat is lumped together and value categorized as ODFW Habitat Category 6 (lowest value designating facilities/structures that are non-restorable). ODFW disagrees with this habitat categorization and recommends that the agriculture/pasture lands be categorized as category 5 and the poplar farms be categorized as category 4.

Page 84, Table 3.1

This section includes a stream as a habitat category 6. Even if this is an intermittent stream or a ditch, it would not be categorized as a category 6. ODFW would be open to discussing this with the applicant as to the stream's appropriate habitat categorization.

Page 85, Second paragraph

This paragraph says: "Mitigation for wetland impacts is addressed in Section 2.0, and mitigation for fish habitat impacts is addressed in Section 4.0 of this mitigation plan." Comment: It is not clear where wetland mitigation, in terms of ODFW's Fish and Wildlife Habitat Mitigation Policy is addressed in Section 2.0. If it assumed that other mitigation methods (e.g., Oregon

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Bradwood Landing Natural Gas Importation Terminal
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SA1-185
cont'd

Department of State Lands (DSL) wetland mitigation requirement) fulfills ODFW's Fish and Wildlife Habitat Mitigation Policy then clarify this.

Page 87, second paragraph

This paragraph acknowledges that even-aged stands of poplar do indeed provide some wildlife value, including cover habitat for Columbian white-tailed deer (CWTD). This statement supports the change of this habitat to a habitat category 4 as mentioned in the comment above for Page 83.

Page 95, Section 3.9.2 Maintenance, Weed Control

ODFW recommends addressing the timing of when weed control would occur. This should be conducted outside of bird nesting periods.

Page 99 – Avoidance and Minimization Measures for CWTD

Maintenance vegetation control between mid-July to October may be okay for the deer, but not for nesting birds. See comment for page 95 above.

K-483

Estimated average monthly boat count by fishery in the Columbia River downstream of Bradwood area.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Sport Sturgeon ^{cod}		25	50	150	1,039	3,320	3,080	352	32				15,109
Sport Salmon (Buddy 10) ^{see}								14,989	6,914				21,894
Spring/Summer Chinook & Smd ^d	0	50	3,300	7,300	425	430	400	450	400	35			12,790
Sport Bottomfish ^{af}		50	150	30				80					360
Sport Crabbing ^a	30	15	10	50	150	200	450	450	850	650	700		4,055
Commercial Gilnet ^{ed}	37	70	206	0	465	187	308	935	446	865	0	20	3,334
Commercial Crabbing ^{ah}	32	30				8	744	2,843	569			400	675
Ocean Sport Salmon ^{bc}							35	28	10				3,999
Ocean Sport Halibut/Bottomfish ^{bc}						0	9	16	12				128
Ocean Sport Tuna ^{bc}						4							40
Ocean Crab ^k													0
Ocean Comm. Crab ^g	862	766			247	127	61	32				464	3,368
Ocean Comm. Shrimp ^g					86	74		64		45			439
Ocean Comm. Bottomfish ^{ah}	54	82	66	102	146	132	175	136	133	54	55		1,352
Ocean Comm. Salmon ^{bi}			6	4	105	41	43	42	25	7			256
Ocean Comm. Sardine ^{bi}							804	414			6		1,640
Ocean Comm. Tuna ^{bi}						4	124	82					327
Ocean Comm. Whiting ^{bi}							216	50	2				
Total	1,638	1,176	4,240	8,063	4,661	9,797	5,828	20,935	9,614	1,859	710	1,641	68,766

^e Peak periods

^f Combined OR/WA data

^g Oregon only data. All combination trips are assigned to salmon effort (salmon+bottomfish, salmon+tuna, and salmon+halibut). May through Sept effort only

^c 2002-06 effort based on exit counts of boats that are then assigned to trip type based on interviews on a portion of the boats at the end of their trips.

^d Season open Jan 1-Apr 30 and mid-May thru harvest quota (around Jul 4).

^e Season open Aug 1 thru Dec 31. Main part of season is mid-Aug thru early-Sept.

^f Educated guess

^g 2006 data

^h Based on commercial crabber estimate

ⁱ 2004-06 creel data

^j 2002-2006 average of Troll Salmon Deliveries (should roughly equate to vessel bar crossings)

^k Ocean recreational crabbing is usually part of another targeted fishing trip, and would be included with other listed trip types.

^l 2002-2006 average of fish ticket deliveries

Red text indicates effort doubled to represent both seaward and return trip

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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 compiled on this proceeding.

Date: December 18, 2007.


Janet L. Prewitt, #85307
Assistant Attorney General

State Agencies

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January 3, 2007

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 1st NE Rm 1A
Washington, DC 20426-0001

RE: Corrected Version of submittal Docket No. CP06-365-000

Dear Ms. Bose:

Thank you for the opportunity to provide input on the Draft Environmental Impact Statement (EIS) for the Bradwood Landing, LLC liquefied natural gas (LNG) import terminal and storage facility, and an associated natural gas send out pipeline.

Background

The facility would be located at the former mill town of Bradwood, Clatsop County, Oregon, located at River Mile (RM) 38 on the Columbia River.

Specific components of the facility include a one-berth marine facility capable of handling 125 LNG carrier ships per year; interconnecting facilities including piping, electrical, and control systems; two LNG storage tanks with a capacity of 160,000 cubic meters; vapor handling, re-gasification and send out systems; utilities and other support systems, and associated buildings and enclosures.

A 36-mile underground, high-pressure welded steel send out pipeline would extend from the storage facility. This pipeline is split evenly between Oregon and Washington – with approximately 18.9 miles of 36-inch-diameter pipeline in Clatsop and Columbia Counties, Oregon, and 17.4 miles of 30-inch-diameter pipeline in Cowlitz County, Washington. Northern Natural Gas would construct, manage and own the send out pipeline.

The LNG would arrive by large vessel, from overseas sources. The facility would receive and decompress the LNG, routing it through the pipeline to private recipients and to the Williams Pipeline, near Kelso, Washington. The facility would include a natural gas send out capacity of up to 1.3 billion cubic feet per day ("BCFD").

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Authority

This project involves different Divisions within the Department of Natural Resources (DNR). This letter reflects comments from the Aquatic Resources Division.

As the FERC may already be aware, DNR manages over 2.6 million acres of state-owned aquatic lands and attached resources, including bedlands, shorelands, tidelands, and harbor areas.

Resources located upon aquatic lands that DNR manages include aquatic plants, aquatic animals; and valuable materials and minerals.

DNR management authority derives from the state's constitution, law, and regulations.¹ As proprietary manager of state-owned aquatic lands, DNR has been directed to manage these lands "...for the benefit of the public..." in a manner that provides "...a balance of public benefits² for all citizens of the state..." that includes: "(1) Encouraging direct public use and access; (2) Fostering water-dependent uses³; (3) Ensuring environmental protection; and (4) Utilizing renewable resources" (Revised Code of Washington, 79.105.030).

As part of the obligation under RCW 79.105.030 to manage state-owned aquatic lands for the benefit of the public, aquatic resources are viewed as part of a larger complex system. Evaluations typically include assessments of potentially affected aquatic areas, adjacent uplands and the human impacts within those environments. Therefore, individual projects and requests are typically reviewed in this ecosystem context, rather than as isolated cases. The Aquatic Resources Division anticipates taking this approach with hydrokinetic project evaluations on state-owned aquatic land.

State-Managed Aquatic Lands Located Within the Project Area

Of the 17.4 miles of pipeline in Washington, a number of waterbodies will be crossed, and two are considered navigable and under state management by DNR: the Columbia River and the Cowlitz River. NorthernStar Energy, LLC would use horizontal directional drilling methods to cross both the Columbia River and the Cowlitz River.

SA2-1

DNR manages the bedlands and tidelands of the Columbia River where the proposed pipeline is to cross. In order to directional drill through the bedlands and lay pipeline in the Columbia River, the company will need to survey the location and sign a Use Authorization with DNR.

The section of the Cowlitz River where the pipeline would cross is also under DNR management. The crossing is just south of an actively meandering portion of the riverbed. DNR has requested that the company move the original pipeline crossing south, away from this portion of the river.

¹ Articles of the Constitution (XY, XVII, XXVII), Revised Code of Washington (RCW) 79.02, 79.10, 79.14 and 79.105 to 79.145, Washington Administrative Code (WAC) 332-30.

² WAC 332-30-106 defines public benefit as "...that all of the citizens of the state may derive a direct benefit from departmental actions..."

³ Water dependent uses are those uses that "...cannot logically exist in any location but on the water" (RCW 79.90.465).

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SA2-1

Table 1.3-1 includes the WDNR's responsibilities regarding Aquatic Lands Use and Lease Authorization.

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SA2-1 | The company has complied, but has not provided a survey or exact location of the corrected crossing. Thus far, DNR has only received the images provided in the environmental documents.

cont'd

General Comments⁴

SA2-2 | DNR Encourages Submitting Applications for Use Authorizations Early for Large Complex Projects

DNR met with the applicant in June of 2007 to discuss forest practice and aquatic land use requirements. The applicant stated they would be submitting use authorization packages after obtaining all permits. The applicant was highly encouraged to submit a package early, even if incomplete, due to the nature and complexity of this project.

Applicant Concerned by Agency Delays: The applicant has stated concern in the Draft EIS about being "unreasonably" delayed by state or local agencies. DNR would be able to issue a use authorization in a timely manner, if an application were received early – even if the application package were incomplete. DNR has not received such a package.

Aquatic Lands Excluded from Draft EIS

SA2-3 | At the June 2007 meeting, the applicant was informed that Columbia and Cowlitz River crossings would require the applicant to obtain a bedlands easement. The current Draft EIS excludes specific mention of tidlands and bedlands under management of DNR for which an easement from DNR will be needed. An applicant is not relieved of its obligation to obtain authorization from DNR to use the state-owned bedlands because the applicant is drilling beneath the surface of the bedlands. The state's fee ownership of river beds includes all subsurface rights to such lands. The failure to include bedlands in the calculation of state-owned land necessary for easements is in error and further substantiates a need for a formal survey meeting DNR's requirements.

Clarify any use of State-Owned Aquatic Lands for Dredge Material Deposition and Beneficial Use of Materials

SA2-4 | DNR also manages state-owned aquatic lands on Puget Island, where the applicant states they will be disposing of dredge spoils for purposes of beneficial use. The applicant states the county (Wahkiakum County) will be responsible for obtaining all permits associated with this part of the project. However, DNR has not been contacted about this action or approved a Site Use Authorization for the deposition of dredge material from Oregon for beneficial use on state-owned aquatic lands at Puget Island.

Disposal of Dredge Spoils

If the Wahkiakum County Sand Pit Site is located on or adjacent to state-owned aquatic land, DNR needs to be consulted. The applicant or Wahkiakum County will need to obtain or amend a Use Authorization to use state-owned aquatic lands to dispose of dredge spoils. DNR needs to evaluate the amount and quality of any material placed from the Oregon side of the Columbia River onto the Wahkiakum County Sand Pit site. DNR

⁴ See attached comment matrix

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SA2-2 The FERC staff, not the applicant, produced the EIS. We list in table 1.3-1 permits NorthernStar should obtain prior to construction, and it is up to NorthernStar to file applications with appropriate regulatory agencies to obtain those permits.

SA2-3 We have revised section 4.7.3.6 to discuss that Washington state-owned lands include riverbeds crossed by the pipeline. It is the responsibility of NorthernStar to apply for and obtain required permits or authorizations from regulatory agencies, such as use authorization application from the WDNR for waterbody crossings in Washington, prior to construction.

SA2-4 NorthernStar is pursuing the appropriate state permits.

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SA2-4
cont'd

will need assurances that all material placed on state-owned aquatic lands is under the ownership of DNR.

Beneficial Use of Sediments

DNR considers the use of material for beneficial, public use a separate action from the disposal of dredge material. According to the locations described in the Draft EIS, placement of dredge material for beneficial use may involve state-owned aquatic lands along Puget Sound Island or Coffee Pot Island beaches. This would require coordination with and a Use Authorization from DNR. Once placed on state-owned aquatic lands, DNR considers the material under state ownership.

DNR is currently developing internal policy and guidance pertaining to beneficial use of dredged materials on state-owned aquatic lands (both marine and freshwater). Until completed, the applicability of this tactic will be evaluated on a case by case basis, both by the Sediment Quality Unit of DNR and the DNR District staff employees.

SA2-5

No Plans for Abandonment and Decommissioning

The applicant has made no plans regarding the abandonment or decommissioning of the pipeline. DNR's easement form has standard language for the removal of structures on state-owned aquatic lands. These provisions require that improvements owned by the easement holder be removed by the Termination Date unless DNR notifies the easement holder the improvements may remain. It is DNR's policy that if the improvements remain on state-owned aquatic lands after the expiration of an easement, DNR may choose to remove the improvements, at the easement holder's expense.

SA2-5 Potential future plans and abandonment are discussed in section 2.9. Any future abandonment would be subject to the appropriate environmental and non-environmental review based on federal, state, and local regulations in effect at that time.

SA2-6

Assumptions Regarding Payment for Easements

The Draft EIS stated one-time payments would be negotiated with public agencies for easements crossing public lands. Such easements would grant temporary construction and permanent rights of way for operation. DNR has not agreed to, or excluded, a one-time payment in the absence of an application for a Use Authorization. DNR's statutory easement authority requires DNR to charge full market value for any easement it grants for the pipeline. DNR may require payment on either a one-time or annual basis.

SA2-6 Section 4.7.3.1 has been revised to state that one-time easement payments are typically negotiated. We acknowledge the DNR's comment that it may require either a one-time payment or payment on an annual basis.

SA2-7

Impacts to Shorelines of the Columbia River caused by Vessel Wake

The document makes conflicting statements about the impact of vessel wake and shorelines. The Draft EIS justifies the placement of dredged material at Puget Island, as a beneficial use to offset the impacts of vessel wakes (pages 3-53).

"The shoreline located between the Wahkiakum County Sand Pit and the federal navigation channel is subject to a combination of ship wakes, wind, and tidal effects that are currently eroding sand from the river beach at a rapid rate. Dredged material was most recently applied to the beach area in 2001 to mitigate the erosion."

SA2-7 See our response to comment FA4-14.

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SA2-7
cont'd

The section addressing potential impacts of vessel wake to Columbia River shorelines is simply not clear. No cumulative impact analysis was completed. The Draft EIS concludes that "...staff continue to study this issue and additional analysis regarding shoreline erosion will be included...in the final EIS (pages 4-5)." If the analysis is incomplete, it is difficult to comment on the potential impact.

If there is an increased potential for erosion on state-owned aquatic lands in the Columbia River, DNR needs to be informed of this possibility. Thank you for this opportunity to comment. Should you have any additional questions or comments please do not hesitate to contact me.

Sincerely,

Rich Doenges
Division Manager
Aquatic Resources

Enclosure

State Agencies

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Washington Department of Natural Resources
Aquatic Resources Division
Comment Matrix: Bradwood Landing, LLC Draft Environmental Impact Statement

Commenting Agency	Reference to DEIS (section, page, paragraph, line number)	Subject/Comment	What's wrong or missing and why	Proposed solution and suggested condition language	Suggested deadline for compliance with the condition
SA2-8	WDOB AQ 1.3.11 Other State permits and approvals, p. 64	"The PERC encourages cooperation between applicants and state and local authorities, but this does not mean that state and local agencies, through application of state and local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by the PERC."	DNR does not issue permits. The applicant will be receiving a use authorization for public land. The applicant would not be delayed if the applicant would send an application in to use public lands. To date, one has not been received.	Applicant should submit a use authorization application with required DNR survey.	Prior to construction.
SA2-9	WDOB AQ 1.3.9	"The Columbia River Basin is exempt from the CZMA, except for the zone of significant tidal influence."	Using the zone of tidal influence does not appear to justify exemption from the CZMA. Based on information from Ecology and DNR, DNR Aquatics would be issuing a <u>threshold</u> assessment for this area.	Suggest reviewing that section with Ecology.	Prior to PERC
SA2-10	WDOB AQ 2.9, Future Plans and Abandonment I, p. 122	"NorthernStar has no future plans to abandon or remove the proposed LNG terminal and pipeline facilities."	A decommissioning plan for encumbrances on state owned aquatic lands will be required by DNR AQ.	DNR will require detailed decommissioning requirements as part of its use authorization as it has done with other encumbrances involving natural gas lines and previously owned utilities.	Prior to PERC
SA2-11	WDOB AQ 3.19.2, Dredged Placement Alternatives.	"... the other half of the Wahkiakum County Sand Pit beach area on Puget	If dredged materials will be placed "in adjacent aquatic areas" located on or near state-owned aquatic lands, DNR	Have Wahkiakum County (or dredging proponent) contact DNR. The dredging proponent must	Prior to placement of spoils

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SA2-8 Appropriate revisions have been made in the EIS. See our response to comment SA2-3.

SA2-9 The only portion of the Bradwood Landing Project subject to federal CZMA review is the LNG import terminal at Bradwood. None of the proposed project facilities fall within the Washington coastal zone.

SA2-10 NorthernStar has submitted a decommissioning plan for the LNG terminal with Clatsop County. As mentioned in section 2.9, NorthernStar would need to submit a new application with the FERC to abandon any of its facilities, including the pipeline, and we would conduct an independent environmental review of that proposal at that time. Since abandonment would be a separate and different undertaking it is not covered by the current EIS.

SA2-11 All applicable permits and approvals would be obtained prior to placement of dredged materials at the Wahkiakum County Sand Pit site. See our response to comment FA4-14.

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SA2-11
cont'd

	p. 75	Island. Generally, beach nourishment projects entail placing dredged materials on a beach and in the adjacent aquatic areas."	requires a use authorization. DNR has not received a use authorization application. DNR has not authorized the use of state-owned aquatic land. DNR will need assurance that all material placed on state-owned aquatic lands is under the ownership of DNR. Revised use of dredged materials: However, DNR is currently developing internal policy and guidance pertaining to beneficial use of dredged materials on state-owned aquatic lands (both marine and freshwater). Until completed, the applicability of this tactic will be evaluated on a case-by-case basis, both by the sediment quality unit of DNR and the DNR district personnel.	provide confirmation that the sediments are uncontaminated, and that they have all required permits prior to obtaining a SUA from DNR.	
WDNR AQ	3.1.9.2, Dredged Placement Alternatives	"Washington County is currently in the process of obtaining the necessary permits and authorizations that would allow placement of dredged materials from the Birchwood Landing Project at the Sand Pit site" <i>See above.</i>	DNR has not received a use authorization application. DNR has not authorized the use of state-owned aquatic land. <i>See above.</i>	Have Washington County contact DNR. <i>See above.</i>	Prior to placement of spoils
WDNR AQ	3.1.9.2, Dredged Placement Alternatives	"NorthernStar also proposes to place approximately 80,000 cubic yards of material generated during maintenance dredging once every approximately 2 to 4 years at the Washington County Sand Pit site." <i>See above.</i>	DNR has not received a use authorization application. DNR has not authorized the use of state-owned aquatic land. <i>See above.</i>	Have Washington County contact DNR. <i>See above.</i>	Prior to placement of spoils
SA2-12 WDNR AQ	4.1.2.3, 4.1.3.3 Geologic Hazards	"The only element of the proposed project with the potential to affect the rate of shoreline erosion is the passage of LNG ships. "Little information is available on the degree to which erosion of the Columbia River shoreline can be attributed to ship wakes. "A 1990 study measured erosion rates at three	An manager of the state owned aquatic lands that could be affected by increased vessel traffic. DNR would like to see additional information regarding the effect of the project on erosion of Columbia River shoreline. This paragraph could use additional information. It states a potential exists for vessel traffic to increase shoreline erosion, but provides no real analysis other than a literature	Provide a better estimation of the potential for coastal erosion from an increase in deep draft vessel traffic, focusing more on the pattern of traffic, how closely the ships will be to Washington's shoreline, and what an increase in wave energy will be at certain times of the year. Analysis should provide data on the	<i>See</i> to PERC

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SA2-12 NorthernStar has not provided the complete study. The information we have been given to date has been incorporated into section 4.1.2.3. See also our response to comment FA4-14.

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SA2-12
cont'd

		locations in the first year after placement of dredged material and concluded that 4 to 24 percent of the erosion was attributable to ship wakes (COE, 1995)?	review on what the potential impacts to Washington's shoreline could be from the 25% increase in deep draft vessel traffic. How will this potential impact be contained if not under the CDMAs?	<ol style="list-style-type: none"> 1) Baseline (now) 2) 25% increase 3) Cumulative impacts 4) Any additional known or predicted future increases in deep draft traffic in the Columbia 	
SA2-13	WDRS AQ Geologic Hazards, p. 186	"NorthernStar commissioned a study of wave generation by LNG ships, which compared wave generation by an Admiral tanker, representative of a large ship that works the Columbia River, with an LNG tanker. The study indicated that waves generated by LNG ships would be only slightly larger than those generated by an Admiral tanker operating at the same speed."	Why not provide complete results of this study? The results will be passing in the Clifton Channel, a narrow area between small islands, which when Bradwood began depositing dredge spoils at the western terminus of Puget Island, may become an even more constricted. Wouldn't it be in the best interest to fully disclose how the waves would impact these islands?	Provide a complete description of the study results to support conclusion.	Prior to FEIS
SA2-14	WDRS AQ Geologic Hazards, p. 186	"In summary, the degree to which current ship traffic affects shorelines along the waterway is difficult to quantify due to the various other factors which contribute to shoreline erosion and accretion processes. Therefore, it is difficult to determine what additional impacts on shorelines the proposed LNG marine traffic would contribute."	This statement appears to use cumulative impact analysis as a way to avoid addressing potential impacts of wakes on a shoreline. This section is not on cumulative impacts. Pearson (2006) provides information on deep draft vessel impacts on the shoreline, including type of wake, length wave basin, magnitude of wave, height of wake, factoring in ship speed reduction, draw-down, and the surge height. Pearson (2006) found that "Small changes in speed can be expected to generate large changes in surge elevation."	Address potential impacts of LNG vessels on shoreline erosion. Suggest Pearson (2006) or similar reference. For example - "The authors found that "Redwood characteristics: ground water stage, beach vegetation cover and type, and local beach morphology features may also be important in governing local shorelines and surge."	Prior to FEIS
	WDRS AQ Geologic Hazards, p. 186	"The PERC staff continues to study this issue and additional analysis regarding shoreline erosion will be included in the revised EA and the final EIS."	If information on potential impacts will not be available until the final EIS, how can agencies comment or consider this document in their decision-making?	Improve analysis and provide it during the public (and agency) comment period, not later.	Prior to FEIS and final Biological Opinion/TTP
SA2-15	WDRS AQ Volcanism and Lahars	"... direct impacts are not expected from the eruption of any of these volcanoes, should one occur. Because it would be underground, the pipeline would not be affected by a lahar."	Was not able to substantiate reference material citing White and Pearson, 1995, used to justify conclusion that within the lifetime of the project, potential for an eruption, lahar or other volcano, even that may affect Bradwood or its pipeline, or vessels, would occur.	Substantiate explanation.	Prior to FEIS

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SA2-13 See our response to comment FA4-14.

SA2-14 See our response to comment SA1-112.

SA2-15 See our response to comment SA1-112.

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SA2-16

WDR AQ	4.1.3.3 Geologic Hazard, p. 189	"Long term events include shoreline erosion slope instability and inadequate load bearing capacity of muds." <i>See above</i>	Three shoreline erosion occurs in real time, and slope instability can be associated with our seasonal rain events, it is unclear why this is "long term." Can this be both short-term (immediate) and long term (occurring continuously over a longer period of time)?	Clarify and define "short term" and "long term" - suggest technical review	Prior to PERC
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SA2-17

WDR AQ	4.1.3.3 Geologic Hazard, Soil Mass Wasting and Rock Slope Failure, p. 190	"However, the Washington State Hazard Mitigation Plan (Washington Emergency Management Division, 2004) includes that in the 1890s, a poorly documented, landslide triggered tsunami near Cathlamet killed one person on Puget Island"	A Washington state geologist from DNR, met with and provided documentation on this and other hazards to NorthernStar, Northwest Natural Gas, and their consultants. If needed, DNR Geology will provide further comments at a later time	Suggest a technical review of this section.	Prior to PERC and construction.
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SA2-18

WDR AQ	4.1.3.3 Volcanism and Lahars, p. 204	"The 1980 eruption of Mount St. Helens will likely reduce the magnitude of future eruptions occurring within the lifetime of the Bradwood Landing pipeline (Phillips, 1987, Wells and Person, 1995)"	Mr. R. Helms has argued four times in 5,000 years and two of those eruptions were two years apart. DNR was unable to locate a conclusion in the Wells and Person study cited.	Suggest further substantiation of this conclusion.	Prior to construction
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WDR AQ	4.1.3.3 Volcanism and Lahars, p. 204	"Accordingly, volcanism is not considered a significant geologic hazard that could adversely affect the proposed Bradwood Landing LNO terminal"	Wells and Person (1995) state "Effusion interval has elapsed since the last dome-building eruption in October 1986 for magmas in the conduit beneath the dome to crystallize and form a plug. The pressure needed to overcome the blockage may exceed that of any eruption since May 18, 1980; therefore, the next eruption may be a highly explosive event largely by blockage of the conduit. Extent scenarios for renewed eruptive activity notwithstanding, a conservative approach to hazard assessment requires us to assume, until there is specific evidence to the contrary, that the next eruption will be explosive and as large as or larger than the eruption of May 18, 1980"	The assumption is sounded. The potential impact of volcanoes in the region on the project should be addressed	Prior to PERC
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SA2-19

WDR AQ	4.1.3.3 Volcanism and Lahars, p. 204	"Accordingly, volcanism is not considered a significant geologic hazard that could adversely affect the proposed Bradwood Landing LNO terminal"	Tephra should also be examined. The probability that the terminal will be buried under 4 or more inches of tephra is 2% and the pipeline is 10%. Tephra includes volcanic ash (small- sized or finer particles of volcanic rock) and larger fragments, and is ejected rapidly into the air from volcanic vents during an eruption. The annual probability of an eruption and tephra from any volcano in the Cascade is between .01 and	The assumption is sounded. The volcanoes throughout the Cascade should also be addressed	Prior to PERC
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SA2-16 Slope instability is referring to the long-term condition existing prior to short-term failure, which would be the landslide or rock fall. A rain event is one possible trigger that could cause an unstable slope to fail.

SA2-17 See our response to comment LA7-25.

SA2-18 See our response to SA1-112.

SA2-19 The discussion on volcanism in section 4.1.3.3 has been revised.

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SA2-20

<p>WDNR AQ</p>	<p>4.3.2.3 Sediments</p>	<p>In accordance with the Dredge Material Evaluation Framework (DMEF) developed by the Regional Management Team (RMT), an inter-agency task force that is still developing on the Columbia River, Northstar conducted a Tier I evaluation of the project area. Because the Tier I evaluation indicated the presence of generally low levels of some chemicals of concern, a DMEF Tier II analysis (physical and chemical analysis) was selected as the most appropriate level of evaluation for the proposed dredged material.</p>	<p>OSR</p> <p>According to the Sediment Evaluation Framework for the Pacific Northwest, which is the framework for assessing and characterizing freshwater and marine sediments, in WA, OR, and ID, the Washington Department of Natural Resources is listed as a participant on the Regional Dredging Team, along with the USACE, EPA, Washington Department of Ecology, Washington Department of Natural Resources, Oregon Department of Environmental Quality (ODEQ), Idaho Department of Environmental Quality (IDEQ), and the Blue Pine Tribe Water Resources Division (BPTWRD). The SEF consolidates and refines the existing DMEF. The SEF is a framework for assessing and characterizing freshwater and marine sediments in WA, OR and ID. The SEF compiles information from many documents in use: the ENH, splitting many. The SEF is consistent with state and federal regulations and provides a toolbox of methods available for sediment characterization, etc...</p> <p>In this DMEF, is the "Regional Management Team" the same as the Regional Dredging Team? If so, DNR is a part of the team. DNR is also a member of the Lower Columbia Solutions Group - DNR is now taking on a leadership role in this group, both from a technical and policy perspective - how sediments are characterized, possible beneficial use locations, STUA's, etc.</p>	<p>Ensure that DNR is contacted and provided with the results of all sediment analyses, since the dredge spoils may be placed on 30AL. Suggest checking terminology (Regional Management Team vs Regional Dredging Team, Sediment Evaluation Framework versus Dredge Material Evaluation Framework). Suggest correctly characterizing DNR's role in evaluation of sediment.</p>	<p>Prior to deposition of spoils at Sand Pit</p>
<p>WDNR AQ</p>	<p>4.7.3.1 Land Use</p>	<p>"Northstar would need to acquire new easements or property to construct and operate the proposed facilities. The easement would convey both temporary (for construction) and permanent rights-of-way to Northstar and would give Northstar the right to construct, operate, and maintain the proposed facilities. Northstar would negotiate a one-time payment for each easement."</p>	<p>While a one-time payment has not been proposed, DNR has not been involved in negotiations for payment, and this option has not been agreed upon.</p>	<p>Clearly statement about one-time payment and negotiation complete</p>	<p>Prior to PER</p>

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SA2-21

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SA2-20 All applicable permits and approvals would be obtained prior to placement of dredged materials at the Wahkiakum County Sand Pit site.

SA2-21 Section 4.7.3.1 has been revised to reflect this information about payments for right-of-way easement to the WDNR.

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SA2-22

WDNR AQ	TABLE 4.7.3-2	Calculated amount of acreage for crossing Columbia and Cowlitz River in Washington	The affected area of DNR AQ lands does not appear to be presented	Work with DNR AQ to determine area for easement	Prior to construction
WDNR AQ	"Other Lands" and corresponding TABLE 4.7.3-0 (pages 4-317 and 4-318)	Calculated amount of acreage for crossing Columbia and Cowlitz River in Washington	The calculation for submerged land managed by the Department of Natural Resources is incorrect and does not include the bedlands or islands in Columbia River, or the bedlands or the out point of the Cowlitz River. A ROW calculation will need to be provided before an easement can be obtained.	Correct information. Work with DNR AQ to determine area for easement.	Prior to construction
WDNR AQ	4.5.3.1 Aquatic Resources Impaired Release of Drilling Mud, p. 346-08	This section references an "HDD Contingency Plan" which provides for an "alternate site" should a frac-out occur.	DNR supports the use of an alternate site, if needed. The location can be included in the easement document prior to construction.	Provide details of alternative site to DNR.	Prior to construction

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- SA2-22 Tables 4.7.3-2 and 4.7.3-8 and section 4.7.3.6 have been revised to clarify that acreages of submerged lands managed by the WDNR are estimates. As part of the process of obtaining an easement from the WDNR, NorthernStar would be required to complete a survey, conducted by a Washington state licensed surveyor, of each waterbody that would be affected by the pipeline to determine the amount of state-owned aquatic land that would be affected.
- SA2-23 If a frac-out were to occur during HDD operations, an alternative HDD borehole location, within the existing construction right-of-way, would be determined at that time based on the location of the frac-out. Any necessary approvals associated with the new location would be obtained before drilling of the new borehole was started.



Committee Members
Carl Weimer, Chair • Leo Bowman, Vice Chair
Bob Archey • Bob Bandiera • Jean Buckner • Duane Henderson
George Hills • Grant Jensen • Pete Kmet • David Knoelke
Richard Kuprewicz • Shirley Olson • Bill Rickard

State of Washington Citizens Committee On Pipeline Safety

PO Box 47250 Olympia, WA 98504-7250 • www.wutc.wa.gov/pipeline/ccops

December 15, 2007

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C., 20426

Re: Draft Environmental Impact Statement (DEIS) for the Bradwood Landing
LNG Project (Docket Nos. CP06-365-000, et al.)

Dear Secretary Bose:

The Washington State Citizen Committee on Pipeline Safety would like to submit the following comments on the Draft Environmental Impact Statement (DEIS) for the pipeline associated with the Bradwood Landing LNG Facility.

The Washington State Citizen Committee on Pipeline Safety was established by the Washington State Legislature in 2000 to "advise the state agencies and other appropriate federal and local government agencies and officials on matters relating to hazardous liquid and gas pipeline safety, routing, construction, operation, and maintenance." The committee is Governor appointed and meets regularly to discuss, identify, review and highlight pipeline safety issues on a local and national level. The committee consists of nine voting members representing the public, including local government, and elected officials. Four non-voting members represent owners and operators of hazardous liquid and gas pipelines.

Over the past couple months committee members have reviewed the DEIS for the Bradwood facility, and voted unanimously at our November 29th committee meeting to submit the following comments.

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Construction Related Issues

- SA3-1 • We are concerned about possible jurisdiction, coordination, and expertise issues between the Federal Energy Regulatory Commission (FERC), the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the Washington Utilities and Transportation Commission (WUTC). For these reasons we ask that FERC allow the WUTC full access to the pipeline and related construction documents for the purpose of inspection during the construction phase. We also ask that PHMSA grant the WUTC permission to carry out these construction inspections as part of their delegated interstate authority. We ask that this be incorporated in the final EIS.
- SA3-2 • We are concerned that the DEIS does not clearly call for the non-destructive (e.g., radiographic or ultrasonic methods) inspection of every girth weld on the pipeline. Given the difficult terrain, the pipeline is highly susceptible to abnormal loading, we ask that the final EIS makes clear that every girth weld will be 100% inspected by non destructive testing, and that these girth weld nondestructive test records be retained and made available to governmental inspectors for the life of the pipeline.
- SA3-3 • We concur with FERC that the current amount of information available regarding seismic and landslide hazards is insufficient, and ask that pipeline construction not begin until FERC, PHMSA, and the WUTC are satisfied with the analysis and any proposed routing changes and mitigation that come from it.
- SA3-4 • We are concerned with the level of confidence that FERC seems to put in the use of strain gauges for providing warning against landslides. While strain gauges can be valuable for predicting problems on slow moving slide areas, they provide little or no protection for landslides in geologic formations that make them prone to catastrophic failures (e.g. slopes susceptible to high hydrology gradients such as that in Western Washington). This again points to the need for better analysis of landslide areas and rerouting if necessary.
- SA3-5 • The use of HDD to get under streams and landslide areas is extensive in the construction plans. While we do support the use of HDD in such situations, we also know that even with the best geologic analysis HDD can fail. For this reason we ask that the final EIS clearly state what methods will be used in each situation if the HDD methods turns out not to work in an area. For streams this would include which method would be used in place of HDD, and for slide areas this would include whether the pipeline will be rerouted to avoid the slide or what other mitigation may be employed.

- SA3-1 State agencies with statutory authority to regulate pipelines may conduct inspections independent of the FERC or accompany FERC inspection staff.
- SA3-2 As stated previously the pipeline will conform to DOT regulations including Title 49, Part 192 Subpart E §192.241 and §192.243.
- SA3-3 The FERC would not approve construction until it has determined that all applicable safety standards would be met.
- SA3-4 We have recommended that NorthernStar conduct additional field mapping and subsurface investigations of landslide area as needed to develop a Final Pipeline Design Geotechnical Report. If this project is approved, our recommendation would be made a condition of the authorization. Also see the response to comment LA7-25.
- SA3-5 If an HDD borehole is unsuccessful, the method would be attempted at different locations within the existing construction right-of-way. If it is determined that HDD methods cannot be used at a given location, the FERC's Procedures require a contingency plan for an alternative crossing method at each HDD waterbody crossing location in the event that the HDD method is unsuccessful (see section 4.3.2.4). Furthermore, NorthernStar has indicated in its HDD Contingency Plan that it would have approved alternative crossing methods for implementation in the event of HDD borehole failure. Directions for accessing NorthernStar's HDD Contingency Plan (Frac-out Plan) via the eLibrary can be found in the response to comment FA3-13.

- SA3-6 • Sometimes, during the HDD process under streams frac-outs occur that can dump harmful quantities of fine silt materials into fish bearing streams. In the DEIS it states that response to such frac-outs would occur within 30 minutes. We believe that the detection and response to frac-outs should occur much quicker than 30 minutes and we would like to see this reflected in the final EIS.

Right-of-way Issues

- SA3-7 • It is our understanding that FERC has a policy to encourage the use of existing right-of-ways when possible. It is unclear from the DEIS exactly why this proposed pipeline from the Bradwood facility is not following the existing KB Pipeline for more of its route through Washington. Please either explain this more explicitly in the final EIS, or require this pipeline to follow that existing KB Pipeline right-of-way since they are both going to the same place.
- SA3-8 • The DEIS states that this proposed pipeline would be serving the Beaver power plants. This would appear to make the KB pipeline obsolete, and its existing right-of-way more available for this proposed pipeline. Please discuss the future need for the KB pipeline, and why the replacement of that pipeline with a larger pipeline was not considered as an alternative to the Washington part of this proposal.
- SA3-9 • The DEIS states that after construction trees will be planted on the right-of-way in forest areas and wetlands within 5-15 feet of the pipeline to reduce the visual impact and protect habitat. The DEIS also states that property owners will not be allowed to plant trees anywhere on the permanent fifty foot right-of-way. We support the planting of trees as suggested for forest and wetland areas, and ask that similar planting also be approved for property owners in consultation with the pipeline operator.
- SA3-10 • The DEIS states that after construction trees will be planted on the right-of-way in forest areas and wetlands within 5-15 feet of the pipeline, and that such plantings will create a nearly full canopy cover. While we support this planting of trees, and ask that it remains a part of this plan, it does bring up the question of how the company plans to meet its inspection obligations under CFR 49 Part 192.705. Please describe in the final EIS what inspection methods the company plans to use if a nearly complete canopy precludes aerial inspections.
- Proximity to Residences**
- SA3-11 • The DEIS states that there are six residences within Washington State, which are within 100 feet of the pipeline. We appreciate the care taken to avoid residential areas as much as possible, but according to the C-FER

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- SA3-6 The EIS has been revised to indicate that the detection and response to frac-outs would occur as soon as possible.
- SA3-7 The proposed pipeline route is collocated with the KB pipeline right-of-way between MPs 22.0 and 30.0 where practical and where conditions are conducive to construction and maintenance of the pipeline. Realignment away from the KB pipeline route have been necessary where the KB pipeline was constructed in areas containing geological hazards such as poor slope stability, or to reduce stream crossing impacts.
- SA3-8 The proposed Bradwood Landing pipeline would provide an alternative source of natural gas to the PGE Beaver Power Plant. There is no indication that the KB pipeline would discontinue its supply of natural gas to the power plant. The potential end users of the KB pipeline and any expansion of the KB pipeline are beyond the scope of this EIS.
- SA3-9 As part of the easement agreement, property owners could negotiate revegetation methods, including tree planting. See also our response to comment CO9-15.
- SA3-10 Among other pipeline DOT safety requirements, the land surface over the pipeline must be inspected at least 26 times each year. FERC would require that NorthernStar adopt the Wetland and Waterbody Construction and Mitigation Procedures, wherein a 10-foot-wide corridor would be kept clear of trees to facilitate the required inspections in wetlands. Furthermore, the trees planted between 5 and 15 feet from the pipeline would be limited to a maximum height of 15 feet. In non-wetland areas, this herbaceous corridor would be extended to a 30-foot-wide maintained corridor within the permanent right-of-way. Maintenance clearing within these corridor widths would prevent the formation of a full-canopy, thereby allowing the inspections to be completed.
- SA3-11 Based on new information provided by NorthernStar, we have identified only three residences within 50 feet of pipeline construction work areas. Pipeline safety is addressed in section 4.11.9.

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SA3-11
cont'd

Technologies report (A Model For Sizing High Consequence Areas Associated With Natural Gas Pipelines - 2000) that is used to help determine high consequence areas, these residents, and probably others, are well within the hazard area. We ask that the final EIS include a list of all residences within the hazard area as defined by the C-FER Report, and that either the route be adjusted to remove these residences from the hazard area, or that an explanation of why that is not possible be given.

Thank you for considering our comments on this proposed facility. If you have questions feel free to contact me.

Sincerely,



Carl Weimer, Chairman

K-500



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

December 21, 2007

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

RE: Bradwood Landing LNG Project, Docket # CP06-365-00, et al.
Comments on Draft Environmental Impact Statement

Dear Ms. Bose:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (draft EIS) for the Bradwood Landing LNG Project. This project proposes to construct a new pipeline to convey natural gas from a new terminal at Bradwood, Oregon that would cross into Cowlitz County, Washington and terminate at a junction with the Williams natural gas pipeline near Kelso, Washington. The Washington Department of Ecology (Ecology) has experience with the environmental review for natural gas pipelines. The following comments highlight regulations and guidelines that apply to the environmental review of this project during the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) processes. They are intended to assist the Federal Energy Regulatory Commission (FERC) in the revision of the draft EIS and completion of the Record of Decision (ROD).

Please note that the State of Washington strongly opposed the FERC's preemption of state jurisdiction over regulation of LNG facilities in 2005 because it undermined our ability to protect our citizens and resources. Regardless of the possibility of federal preemption, we expect Northern Star to reach full compliance with state regulatory requirements by securing and complying with state permits and approvals. Ecology also asserts its authority and expects full compliance with water quality certification requirements under the Clean Water Act.

These comments are separated into three sections. The first includes an excerpt from Ecology's comments on the Notice of Intent (NOI) for this draft EIS. The second section addresses some general comments on the draft EIS and the third is an attachment that includes specific comments and recommendations on the technical details of the proposal and draft environmental analysis.



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Ecology's NOI Comments Not Addressed in draft EIS

The following comments were included in Ecology's comment letter of October 17, 2005 regarding the EIS Notice of Intent issued for this project. We include them here again because they were not adequately addressed in the draft EIS.

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- SA4-1 | 1. **Safety:** The EIS discussion on "reliability and safety" will be critical for revealing the safety impacts, planning, preparedness and contingencies that would affect Washington communities along the Columbia River. As noted in the Notice of Intent, the EIS shall analyze safety issues related to LNG ship traffic and terminal. The EIS should adequately define the boundaries, intensity, duration and extent of potential safety impacts to workers, communities, and property owners. When providing quantitative estimates of impacts, the EIS should use recognized and accepted risk assessment and modeling. The EIS should identify the spectrum of potential accident scenarios that could occur over the life of the proposed action, including failure scenarios from earthquakes, floods, other natural disasters, and human error.
- SA4-2 | 2. **FERC Guidance vs. Washington State Guidance/Standards:** Typically, the FERC's EIS would require the applicant to implement the FERC's Wetland and Waterbody Construction and Mitigation Procedures, Upland Erosion Control, Revegetation and Maintenance Plan, and Stormwater Pollution Prevention Plan. However, Washington requests that applicants follow state or local guidance when it is more stringent, which includes the Wetlands in Washington Volume 1 and 2 (which can be found on the Ecology website at http://www.ecy.wa.gov/programs/sea/bas_wetlands/index.html) and the Stormwater Management Manual for Western Washington (which can be found on the Ecology website at <http://www.ecy.wa.gov/programs/wq/stormwater/manual.html>). The environmental review would be strengthened if the EIS reflects that the project will follow the most stringent requirements and/or guidance. Further, Ecology recommends that FERC require that contractor training cover both the FERC guidance as well as any other local, state or federal agency guidance that is more stringent and conditioned in the state or local permits.
- SA4-3 | 3. **Washington State Water Quality Standards:** The EIS should adequately disclose the extent to which the project will be able to meet state water quality standards. This will include compliance with State of Washington Surface Water Quality Standards (Chapter 173-201A WAC), Sediment Management Standards (Chapter 173-204 WAC), and Groundwater Quality Standards (Chapter 173-200 WAC). If the project is likely to exceed water quality standards during construction in water bodies and wetlands, then the EIS should: (1) identify how much, when and how long the project would be out of compliance; (2) how the impact will be minimized; (3) when the project would be back into compliance; and (4) what mitigation is offered for any temporal losses to fish or wetlands. For upland construction, the EIS should address the development of separate Stormwater Pollution Prevention Plans (SWPPPs) for land disturbing activities in Oregon and Washington, as will be required by the state National Pollution Discharge
- SA4-4 |

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- SA4-1 | Section 4.11.5.3 of the final EIS discusses the hazards associated with a spill from an LNG carrier which includes defining the zones of concern associated with a spill from an LNG carrier, the distance to these zones, the thermal flux levels of these zones, and what communities or areas are included in each zone. Section 4.11.4 discusses the hazards associated with a spill at the LNG terminal which includes modeling for different spill scenarios, thermal flux levels and distances that these thermal flux levels travel. The final EIS presents a consequence analysis of these hazards. The facility must comply with the siting requirements in 49 CFR 193.
- SA4-2 | It is anticipated that state-specified measures for project-related activities will be addressed as part of the various permitting processes (see table 1.3-1).
- SA4-3 | Table 1.3-1 lists the major federal, state, and local codes, ordinances, statutes, rules, regulations, and permits that would apply to the project. NorthernStar would adhere to conditions of these permits. We have revised section 4.3.2.1 of the EIS to mention Washington state water quality standards. It would be the obligation of NorthernStar to apply for and obtain necessary water quality permits from appropriate Washington state agencies prior to construction. See response to comment SA1-79.
- SA4-4 | As described in section 2.4.1, NorthernStar has developed terminal and pipeline ESC Plans for construction activities within Oregon and a SWPPP for Washington. These plans incorporate elements of the FERC's Plan and Procedures, state and county requirements and provisions, stormwater pollution prevention plans, and spill prevention and response procedures. These plans were filed with the FERC as part of the JPA on November 22, 2006. Revisions to the JPA were filed on April 5, 2007. This document is available for viewing by the public on the FERC's internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e. CP06-365), and putting in the proper date range. Potential impacts on critical areas, endangered species and water quality are included in sections 4.7, 4.6, and 4.3, respectively.

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- SA4-4 cont'd Elimination System (NPDES) permits for construction activities. The EIS should include information on critical areas, endangered species, and how potential impacts to water, such as turbidity, will be evaluated.
- SA4-5 Pursuant to the requirements of the Washington State Water Quality Standards (Chapter 173-201A WAC) the EIS should identify beneficial uses of surface and ground water, impacts on those beneficial uses, and measures to comply with the standards or reduce exceedances of the standards.
- SA4-6 4. **BMPs:** The project design and the EIS should recognize that BMPs for in-water work may be different from BMPs for upland work. Making this distinction in the EIS will reduce confusion or concerns that inappropriate BMPs will be used. Similarly, it would be useful for reviewers of the EIS to understand that two different water quality monitoring strategies will be needed for the project: one that addresses in-water construction and one that addresses upland construction, as required by the respective water quality permits.
- SA4-7 The EIS should include information on clearing limits. It should discuss the construction access and wheel wash - how the project will minimize dirt, mud, and debris from being tracked onto private and public roads. If wash stations are proposed the EIS should describe how they will be constructed and maintained to prevent runoff from impacting waterbodies and wetlands. The EIS should also discuss how flow rates will be controlled, and if retention/detention facilities will be constructed. The EIS should discuss BMPs to control sediment and stormwater runoff; preserve vegetation, stabilize soils, and protect slopes; protect drain inlets; stabilize channels and outlets; control all pollutants, including water materials and debris; control de-watering; minimize turbidity from equipment working in waterbodies; or trap sediment in a manner to avoid interference with the movement of salmonids. For example, a checklist of sources and perimeter control BMPs, and BMPs that will apply to equipment that will enter waterbodies could be included in the EIS.
- The EIS should describe construction sequencing, work and specific erosion and sediment control plans for work planned during the rainy season, and timing for installation of erosion control BMPs. For example, appropriate BMPs should be set up prior to grading or other activities that disturb soils and have the potential to cause erosion.
- The EIS should describe spill prevention protocol and the placement and contents of spill kits, and how construction crews will avoid littering the construction right of way. For example, clearly marked garbage cans could be carried on all construction vehicles for cigarette butts, food wrappers, and drink containers.
- SA4-8 5. **Cumulative Impacts:** The discussion of cumulative impacts should be element-specific, not discussed separately. The discussion should define what the project is

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- SA4-5 Potential impacts and mitigation for beneficial uses of ground and surface water have been addressed in section 4.3.1, 4.3.2, and in NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan. Directions for accessing NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan via the eLibrary can be found in the response to comment FA2-17.
- SA4-6 Section 2.4.2.1 discusses general pipeline construction techniques, and section 2.4.2.2, discusses special construction techniques, including in-water work. NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan provides details on different BMPs in wetlands and waterbodies. This document is available for viewing by the public on the FERC's Internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e. CP06-365), and putting in the proper date range.
- SA4-7 Vehicle wheel washing would occur on a paved wash pad near the point where the access road crosses the realigned railroad. No soaps or surfactants would be used for vehicle wheel washing and the temperature of water used for washing would be equal to that of water being stored in the on-site storage tank (no hot water would be used). Excess water from the pad would be discharged to a two-cell sedimentation/infiltration pond. Construction sequencing is discussed in section 2.4. NorthernStar would implement the FERC Staff's Procedures, as well as its Terminal and Pipeline ESC plans in Oregon as well as its SWPPP in Washington. Furthermore, we are recommending that NorthernStar revise its pipeline ESC Plan and SWPPP to include the measures from the FERC's Plan that provide greater protection. We believe that the implementation of these plans will adequately address the issues in this comment.
- SA4-8 We discuss our strategy for analyzing cumulative impacts from projects located in the same geographic region that may occur within similar time frames at the beginning of section 4.12, and list those projects on table 4.12-1. We were unable to find detailed environmental information about each of those other projects, except for the Oregon LNG Project, so we are unable to produce a comparative table. However, we have revised section 4.12 to add data about the Oregon LNG Project. Section 4.12.3 does address cumulative impacts on vegetation and wildlife.

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- SA4-8
cont'd
- considering for the cumulative impact area. The discussion should be linked to how cumulative impacts relate to project impacts. Providing a table of cumulative impacts to supplement a narrative description would be useful to reviewers. Cumulative effects should be identified for vegetation, wildlife, aquatic species and their habitat. Cumulative impacts should also be described for future maintenance of the right-of-way and pipeline. The EIS would be strengthened by having a summary table for each vegetation, upland habitat, and aquatic habitat that shows acreage of estimated permanent impacts (habitat loss) and temporary impacts. Similarly, the EIS could include a parallel table that summarizes how permanent and temporary impacts will be mitigated. Additionally, the EIS should include the methodologies that were used for the impact analysis.
- SA4-9
6. **Unavoidable Impacts:** The EIS should identify the unavoidable direct and indirect impacts and the proposed mitigation. The EIS should also identify those unavoidable direct and indirect impacts that cannot be mitigated. Adding separate subsections that explain unavoidable impacts within each technical element of the EIS would be helpful for reviewers and may reduce comments and requests for additional information. For example, unavoidable adverse impacts could be added as a subsection to each of the section of the chapter on Environmental Analysis. These new subsections would logically follow subsections on mitigation. The EIS would be strengthened if unavoidable adverse impacts were summarized in the Executive Summary and in the chapter on conclusions.
- SA4-10
7. **Horizontal Directional Drilling:** The EIS should discuss the possible affects of incidental releases of bentonite drilling mud during the proposed horizontal directional drill crossing at the Columbia River and any other waterbodies where HDD is the preferred crossing method.
- SA4-11
8. **Air:** The EIS should adequately describe the boundaries or extent of impact areas, the intensity and duration of the impact, and existing air quality. The EIS should discuss potential effects of the proposed action on ambient air quality during construction, during normal operating conditions, and during upset conditions. The EIS should describe impacts that would distinctly occur only in Oregon or Washington and what permits would be necessary.
- SA4-12
9. **Floodplain Issues:** Floodplain permits are necessary for projects that traverse a mapped floodplain (referred to as a Special Flood Hazard Area on FEMA maps). Permits are required for any development in flood hazard areas in all communities that participate in the National Flood Insurance Program. There are general standards that apply to placement of all utilities in floodplains, per local ordinances. The EIS should discuss potential temporary and long-term project impacts to floodplains and measures to be implemented to avoid or minimize these impacts. Where spoils are proposed to be stored within the channel, the EIS should explain how this will impact the floodway.

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- SA4-9 As appropriate, subsections within each portion of the environmental analysis (section 4) specifically address impacts and mitigation.
- SA4-10 Potential impacts from a frac-out are discussed in section 4.5.3.1.
- SA4-11 Section 4.10.1 of the EIS includes a discussion of the permitting requirements and air quality impacts of the proposed project. Further details of the modeling analysis described in the EIS are contained in the publicly available Bradwood Landing Modeling Report dated March 22, 2007, submitted to the ODEQ and filed with the FERC. As documented in table 12 of the modeling report, impacts from the proposed project were predicted to exceed the CO and NOx significant impact levels (SIL) for the 8-hour and annual averaging periods, respectively. The predicted impacts greater than the CO 8-hour SIL and NOx annual SIL were predicted to extend 0.38 and 4.4 kilometers, respectively, from the proposed project site.
- SA4-12 All construction within floodplains would be temporary, lasting only a few months during clearing, grading, trenching, pipe stringing, welding, lowering in, backfilling, and restoration operations. All trench spoil would be returned to the trench, and all disturbed areas would be restored to preconstruction contours. Because the project would not add permanent fill in the floodplains, potential flood flows would not be displaced and long-term impacts are not anticipated.

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- SA4-13 | 10. **Channel Migration:** The EIS should discuss stream channel migration issues. The project must not fill, block or otherwise alter channel migration features where such alternations would cause the migration area to impact up or downstream of the area. The EIS should indicate that during project surveying, features of channel migration should also be staked and surveyed (e.g., channel migration areas, relic and overflow channels, spring brooks and other fluvial features related to channel migration).
- SA4-14 | 11. **Environmental Inspector:** The EIS should describe the responsibilities of the Environmental Inspector. These responsibilities should include notifying agencies of permit violations or when permit requirements need to be altered because of field or weather conditions.
- SA4-15 | 12. **Vessel Prevention and Contingency Plans:** The vessels delivering LNG to the proposed site will transit Washington State waters inbound and outbound. The EIS should describe the vessels' oil pollution prevention equipment, the vessels' and vessel operators' spill contingency plans and Safety Management Systems. The EIS should describe the vessel bunkering and oil transfer procedures. (Please consult Chapter 317-40 of the Washington Administrative Code - Bunkering Operations for specific requirements that may apply.)
- SA4-16 | Ecology's Spill Prevention Program manages a unique non-regulatory environmental protection program for tank vessels. Tank vessels operators are invited to participate in Washington's Voluntary Best Achievable Protection (VBAP) and Exceptional Compliance (ECOPRO) Program for Tank Vessels to protect Washington's irreplaceable natural resources from the damage caused by a spill. For more information about this program please visit the website at: <http://www.ecy.wa.gov/programs/spills/prevention/bap/bapbase.htm>. The EIS should discuss the vessel operators' intent to participate in these and other pollution prevention programs.

Additional Comments specific to the Draft EIS

Section 1, Introduction

The objective or purpose of the project is stated on page 1-3 as follows:

To provide a new source of natural gas to the Pacific Northwest through importation of LNG.

- SA4-17 | The stated "need" for this objective is vague and does not sufficiently address the alleged regional shortage or market value problem with natural gas. The draft should be specific about how much more natural gas should be provided to the region. The draft should quantify a reasonably foreseeable future need of natural gas in order to legitimately compare alternatives using the criteria on page 3-1. The boundary of the Pacific Northwest region is not defined, nor is there an estimate of how much this proposal will contribute to the estimated future need of

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- SA4-13 | NorthernStar would comply with the permit requirements under section 404 of the CWA and the FERC's Procedures relative to restoration of the stream beds during waterbody crossings.
- SA4-14 | Section 2.6 outlines the duties of an Environmental Inspector.
- SA4-15 | Contracts with LNG shippers have not been established yet. All vessels are required to carry approved vessel response plans and comply with state spill prevention and contingency plans, including the applicable requirements in Chapter 317-40 of the Washington Administrative Code – Bunkering Operations. Such language has been added to section 2.7.1.
- SA4-16 | Contracts with LNG shippers have not been established yet. Therefore, the EIS cannot discuss the vessel operators intent to participate in Washington's Voluntary Best Achievable Protection and Exceptional Compliance Program for Tank Vessels.
- SA4-17 | We have expanded our discussion of purpose and need in section 1.0 and have included the results of a study by Wood Mackenzie Limited (2007) of markets served by the proposed Bradwood Landing Project (see our response to comment PM1-23).

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SA4-17 new sources of natural gas. The quantified estimates of future demand for natural gas are based on national averages and do not address the stated purpose of the proposal.

cont'd

This information about purpose and need is particularly important given the number of other LNG terminals and pipelines in the region that are engaged in the FERC licensing process.

Section 2, Proposed Action

SA4-18 This section should specifically (i.e. quantitatively) address the current capacity of proposed connector pipelines (e.g. Williams pipeline) and the feasibility of using this system to distribute Bradwood's natural gas. Without this information, it is unclear how this proposal meets the stated purpose and need and consequently it could fall short as a potentially reasonable and environmentally preferable alternative when the evaluation criteria on page 3-1 are applied.

Section 3, Alternatives

SA4-19 The draft EIS should not include the analysis of alternatives that do not address the stated purpose and need. This is an incomplete and potentially misleading exercise – and particularly so when the selection criteria automatically excludes alternatives such as renewable, nuclear power, conservation and efficiency, etc. because they do not fit the stated purpose and need. (page 3-1) More attention should be paid to identifying and refining the purpose and need, and comparing it only to applicable alternatives.

SA4-20 The draft does not adequately address the alternatives of other proposed LNG terminals in Oregon. Although the details of the environmental impacts of these other projects are currently being addressed in concurrent NEPA processes, this draft EIS concludes that the Bradwood Landing terminal is less environmentally harmful (due to a shorter sendout pipeline) than the other proposed projects. This conclusion is made without the necessary cumulative impact analysis of this project and other proposed pipelines. In particular, the analysis should address the Palomar pipeline – which would essentially serve as another sendout pipeline for Bradwood towards the south.

Section 4, Environmental Analysis and Cumulative Impacts

SA4-21 The key missing piece throughout this document is a description of methods that were used to conduct the environmental analysis and provide the basis of comparison between the proposal and the alternatives. This information would document the legitimacy of the conclusions and recommendations for this large complex project of great public interest.

SA4-22 Additionally, FERC received comments on the NOI (as reported on page 1-25) requesting an analysis of the cumulative impacts on global warming and climate change. This draft EIS does not address climate change impacts from this proposal, nor does it include an analysis on how the “existing” environment for the project will be altered in the future due to sea level rise, river hydrology and other changes.

Washington's SEPA specifically requires state and local agencies to consider the impacts of a proposal on climate – as an element of the environment. This draft is deficient in this area.

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SA4-18 See our response to comment FA2-32.

SA4-19 In the beginning of section 3.1 we explain the project objectives, and our criteria for evaluating alternatives. It is standard practice for the FERC to discuss a range of alternatives, including the no action alternative, other sources of energy, system alternatives, and site alternatives. Furthermore, other parties have commented that the EIS should examine conservation and renewable energy resources as alternatives to the importation of LNG.

SA4-20 We disagree. The EIS adequately addresses other LNG terminal locations in Oregon as alternatives to the Bradwood Landing Project. Where we have data about environmental impacts associated with those other projects, they were provided. See our response to comment FA2-3. It is logical that a longer pipeline would have more environmental impacts. The alternatives analysis has been revised to include the Palomar pipeline (see section 3.1.2.2). We also discuss the Palomar Project in our cumulative impacts section 4.12.

SA4-21 We disagree. The EIS summarizes the studies conducted that led to our conclusions, and provides references to those studies.

SA4-22 Section 4.10.1 has been updated to include the estimated CO2 emissions resulting from the construction and operation of the project. In addition, Section 4.10.1.2 of the final EIS has been updated to indicate that NorthernStar has agreed to voluntarily comply with the ODE's siting requirements for non-generating energy facilities, including the CO2 emission standards, for the proposed LNG import terminal.

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SA4-22
cont'd

Furthermore, SEPA provides agencies with *supplemental authority*¹ to require mitigation for – or deny under certain circumstances – a proposal when they identify adverse environmental impacts that cannot or will not be mitigated through existing laws or administrative rules. Although SEPA does not require decision makers to mitigate the impacts before making their decision, it does give them the ability to address impacts that would normally be outside their regulatory authorities.

We recognize the potential role of additional natural gas supply for meeting our future energy needs, but nevertheless, we recommend that FERC address climate change impacts from this energy development project. Washington has committed to reducing fossil fuel emissions through both an executive order and recent state legislation. FERC should address specific mitigation needed to avoid, minimize and compensate for any climate change effects. State approvals for this project must consider these impacts and possible mitigation in order to be consistent with our climate change policy and new law.

Again, thank you for the opportunity to comment. We hope our comments help you to complete a full environmental review of this project.

Respectfully,



Richard K. Wallace
Regional Director
Southwest Regional Office

cc: Mike Wojtowicz, Cowlitz County Planning Department
Steve West, Washington Department of Fish and Wildlife
Elizabeth Ellis, Washington Department of Natural Resources
Ron Wilson, Emergency Management Division
Steve King, Washington Utilities and Transportation Commission
Susan Hughs, Oregon Department of Energy
Dolly Tawater, Wahkiakum County Emergency Management
Cathy Batchelor, Cowlitz County Emergency Management

¹ Supplemental authority is described in Chapter 43.21C.060 RCW and WAC 197-11-660. All state and local agencies are given the authority to condition for impacts identified in an environmental document when they have identified policies about how they will use the supplemental authority. They can deny a proposal when an EIS has been prepared and mitigation is insufficient to mitigate the impact to a nonsignificant level. This is intended to address gaps in existing regulations due to new science, new issues, new environmental conditions, site specific conditions, and unanticipated consequences. Although many new regulations have been added since 1971 when SEPA was adopted, the legislature reaffirmed the need for SEPA in 1995.

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Mark Lundquist, Wahkiakum County Commissioner
Karla Ellis, Army Corps of Engineers - Portland District
Matt Steuerwalt, Governor's Office
Shadrack Scheiman, US Coast Guard
Sheila Pendleton-Orme, Ecology Water Quality Program
Bob Troyer, Ecology Spills Program
Lori Ochoa, Ecology SEA Program
Mark Cline, Ecology SEA Program
Annie Svetez, Office of Regulatory Assistance

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Attachment
Washington Department of Ecology Comments on Bradwood Landing LNG Draft EIS

#	Section and Page	Comment	Recommendation
SA4-23	1.3.1 Washington Page 1-12 and Table 1.3-1 Page 1-18	Washington Department of Ecology's authority to protect water quality and regulate "waters of the state" under state statute RCW 90.48 is not addressed. Authority/Regulation/Permit lacks reference to Section 402 of Clean Water Act whereby NPDES Construction Stormwater Permit is required.	1. In section 1.3.1, add a paragraph on Ecology's regulatory role under RCW 90.48 and section 402 of the CWA. 2. Add "Section 402 of the CWA" and "RCW 90.48" to Table 1.3.1 next to "WDE"
SA4-24	2.1.1.4 Pressure/ Temperature Control Page 2-6	The internalized combustion energy system of LNG ships is not uniform. Most of the LNG vessels under construction are diesel powered and will meet the requirements of this BOG emission control.	Add details on how diesel powered ships will remove BOG to maintain the tank pressure.
SA4-25	2.1.1.5 Ballast and Cooling Water - Delivering filtered river water to the LNG ships	Northern Star proposes to construct a system capable of delivering filtered water to the LNG ships and providing incentives for the delivering vessels to make modifications needed to use this system.	Northern Star should provide details of how the terminal will enforce this modification on LNG vessels contracted by other parties.
SA4-26		The vessels would require regulatory approvals and costly shipyard modifications to accomplish this. This is not practical using spot charter vessels which are not under contract with the terminal as indicated in 2.1.1.9 Ship Selection. The proposal to reduce heat	Ecology recommends that a heat balance analysis showing the reduction of heat transferred to the Columbia River using this concept versus the normal direct overboard discharge of engine cooling water be included as an appendix to the FEIS.

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SA4-23 See our response to comment SA4-3.

SA4-24 We discuss the engine operations of LNG carriers in sections 2.1.1, 4.10.1.1, and 4.11.5.

SA4-25 See our response to comment PM1-31.

SA4-26 In the event that the LNG carrier uses all of its cooling water for ballasting to avoid discharging it to the Columbia River, heat radiating from the LNG carrier's ballast tanks to the surrounding water would not result in adverse impacts for several reasons. The amount of ballasting water needed by an LNG carrier is proportional to its cargo capacity, the larger the cargo capacity, the more water required for ballasting to maintain stability when the cargo is offloaded. For example, a 145,000 m³ LNG carrier would require about 57,000 metric tons (MT) of water for ballasting, while a 210,000 m³ LNG carrier may need upwards of 70,000 MT. Meanwhile, the amount of heat generated (by machinery and power generation) by an LNG carrier while at the terminal depends mainly on the type and size of the LNG carrier's propulsion system, the "hotel loads" and the "transfer loads." Hotel loads are electrical power requirements to operate the ship, excluding the cargo transfer pump loads. Transfer loads are the electrical power requirements to operate the cargo transfer pumps and other ancillary equipment required only to transfer cargo. Transfer loads are proportional to the rate at which the LNG is being unloaded. The unloading rates for LNG carriers at Bradwood Landing would be about 12,000 m³/hr. Unloading at about 12,000 m³/hr requires about 4 MW of power. In all, a steam-powered LNG carrier may require about 6 MW of power considering hotelling and offloading loads, which with an efficiency a bit below 30 percent means that about 15 MW of excess heat is being generated. Conversely, some of the newer (and also larger) LNG carriers being built today require upwards of 9 MW of power during the unloading process but because they employ more efficient generators (more than 40 percent efficient) less overall excess heat is generated. Thus the worst case at the Bradwood Landing terminal would be a steam-powered LNG carrier, generating 15 MW of excess heat during the unloading process. Over the course of the entire unloading process, which lasts about 18 hours, this equates to about 9.2 x 10⁸ Btu. Assuming that all of this excess heat is absorbed by the water used for ballasting (about 57,000 MT), the temperature of the water would only rise about 3 °F. As a side note, the assumption that all of the excess heat is being absorbed by the water only is very conservative considering that much of the excess heat generated in the process would be released to the atmosphere internally (into the engine room) through heat radiation and convection and externally into the outside atmosphere through the power plant's exhaust.

So while the ballast tanks would radiate some heat to the surrounding water, it would be very minimal simply due to the fact that the driving force, a

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SA4-26 cont'd) temperature difference of 3 °F, is so small. Moreover, much of the area adjacent to the ballast tank is above water, meaning some of the excess heat would be dissipated to the surrounding air. Essentially, given the small difference in temperature between the ballast water and the surrounding Columbia River water, the effects of heat radiating from the ballast tanks would be minimal.

In the event an LNG carrier unloads at the wharf without the necessary modifications to discharge cooling water into the ballast tanks, cooling water discharge would occur via standard overboard methods. We have recommended that NorthernStar continue to consult with the NMFS, ODFW, and other appropriate agencies to develop a temperature performance standard for all cooling water discharges from LNG carriers at the wharf. Further analysis of the potential thermal impacts of cooling water discharge on aquatic resources will be included in the revised BA and EFH Assessment. See also our response to comment PM1-31.

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		<p>exchange into the river is questionable. Existing LNG vessels discharge warmed engine cooling water directly overboard. This plan would pump the warmed water into the vessel's ballast tanks until they filled, then recirculate ballast water to provide engine cooling. The ballast tanks are adjacent to the steel hull of the vessel. Engine heat transferred to the ballast water would then pass through the steel hull into the surrounding river water.</p> <p>The net effect of this concept is that the engine operational heat would be indirectly transferred to the Columbia River through the ballast tanks rather than directly overboard as warmed cooling water.</p>	
SA4-27	<p>4</p> <p>2.1.1.6 Ship Safety Systems Page 2-7</p>	<p>The technology listed in this section is not up to date.</p>	<p>Revise to include a current listing and description of international and USCG required navigational and safety monitoring equipment</p>
SA4-28	<p>5</p> <p>Figure 2.3.3-2 Page 2-38</p>	<p>Pipe Storage and Contractor Yard - B is depicted with a waterbody in the western portion of the site. National Wetland Inventory maps also indicate that an emergent wetland extends into the southwestern portion of the site.</p>	<p>Include a description of how these waters of the state will be protected.</p>
SA4-29	<p>6</p> <p>2.4 Construction Procedures 2.4.2.1 Page 2-46 Survey and Staking</p>	<p>This paragraph needs more detail and should be expanded to include requirement in Construction Stormwater Permit.</p>	<p>Prior to beginning any land disturbing activities, including clearing and grading all clearing limits shall be clearly marked/staked. Travel corridors and stockpile sites shall be clearly marked. Sensitive areas to be protected from disturbance shall be delineated and marked with brightly colored construction fence, so as to be clearly visible to equipment</p>

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- SA4-27 Section 2.1.1.6 is a general listing of navigational and communication system equipment and is not intended to be a detailed, comprehensive list of technology. All LNG vessels would have to meet all applicable international, federal, and state navigational, communication, cargo monitoring and control systems prior to being placed into service or conducting operations. We have updated this section in the final EIS.
- SA4-28 Section 4.4.1.3 has been revised to include a recommendation that wetlands potentially affected by activities within the pipe and contractor yard in Washington should be flagged in the field. Construction activities within the yard should not occur within 50 feet of flagged wetlands.
- SA4-29 Section 2.4.2.1 includes a description of survey and staking methods that would be used to mark boundaries of approved disturbance areas. Section 2.4.2.1 has been modified to include a reference to NPDES Construction Stormwater Permit conditions.

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SA4-29 cont'd			operators. Equipment shall enter and operated only within the delineated clearing limits, corridors and stockpile areas. See Element #1 Marking Clearing limits of the NPDES Construction Stormwater General Permit.
SA4-30			Within the same paragraph discussion of marking clearing limits of wetlands and sensitive areas, then mentions used densely vegetated areas for treatment of stormwater. *BMP 102 of the Stormwater Management Manual for Western Washington. "Critical area buffers should not be used for sediment treatment areas."
SA4-31	2.4.2.1 Page 2-46 7 Clearing and grading	It is unclear if all erosion control devices will be in place before construction starts and how they shall be maintained throughout construction.	An adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity shall be implemented in accordance with the Construction Stormwater General Permit beginning with initial soil disturbance and until final stabilization.
SA4-32	2.4.2.1 Page 2-46 8 Trenching	Insufficient erosion control on stockpiles.	All stockpiles shall be stabilized from erosion, protected with sediment trapping measures and where possible, be located away from waterways, and drainage channels. The controls must include a Mulch BMP see BMP 121. Mulch spreading referenced in element #4.
SA4-33	2.4.2.1 Page 2-47 Hydrostatics Testing 9	It is unclear where the intake and discharge locations are for the hydrostatic testing of pipeline segments in Washington. It is also not clear what the volume and rate of discharge will be for these segments of pipeline.	Add more details and clarification on discharge of hydrostatic water. This is a large volume of water. The intake and discharge locations should be more clearly described. The volume of water and rate of discharge as well as any Best Management Practices (BMP's) to

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- SA4-30 The paragraph being referred to in this comment is not in section 2.4.2.1; however, the treatment of stormwater is discussed in 4.3.2.3.
- SA4-31 The EIS is a summary document; more detail on BMPs and construction plans can be found in the FERC's Plan and Procedures as well as in NorthernStar's terminal ESC Plan, pipeline ESC Plan for pipeline construction within Oregon, and SWPPP for pipeline construction within Washington.
- SA4-32 See our response to comment SA4-31.
- SA4-33 The final water intake and discharge locations as well as the discharge rates associated with hydrostatic testing of the pipeline can not be determined until the contractor is selected. The volume of water required and rate of appropriation are described in table 4.3.1-1 as well as in section 4.3.2.4. BMPs are described in the pipeline ESC Plan for Oregon and SWPPP for Washington. Furthermore, NorthernStar would be required to obtain all applicable water appropriation and discharge permits, which require specific intake and withdrawal information and BMPs during application.

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SA4-33 cont'd			prevent scouring and turbid water from entering any surface waters should also be included.
SA4-34 10	2.4.2.2 Page 2-49 Water body crossings. Water crossings continued.	Trench spoils and top soil stockpiles need to be stabilized during construction to protect water bodies. When working in areas of high ground water, trench de-watering may be necessary. De-watering has the potential to create an immediate need to dispose of large volumes of sediment-laden water during construction. Alternative BMPs and preparation for de-watering needs to be discussed in more detail.	Add requirements for control of dewatering Trench dewatering activities should not result in the deposition of sand, silt or sediment. Trench dewatering water should be discharged away from waters of the state and should be discharged in a manner that allows it to infiltrate into the ground. Turbid water must not be discharged into waters of the state. De-watering was only touched on, and the SWPPP does not have alternative BMPs listed.
SA4-35 11	Water crossings continued. Page 2-51	The procedures and environmental precautions lack sufficient detail. Water quality protection using straw Bale Barriers is not addressed sufficiently.	Include the identification and the location of all waterbodies requiring "drivable berms". Require Northern Star to secure approval from Ecology and/or the WDFW for "additional" imported material that is used to backfill waterbodies at open-cut crossings. Require Northern Star to prepare a site specific deep well dewatering plan for Ecology's review and approval. The plans must identify the location of the well points and the discharge location. Require Northern Star to prepare site specific contingency plans for all waterbodies where the HDD and bore crossing methods are proposed. This should include an incidental release response plan. Clarify that Straw Bale Barriers

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- SA4-34 NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan addresses the issues raised in this comment. This document is available for viewing by the public on the FERC's Internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e. CP06-365), and putting in the proper date range.
- SA4-35 Additional details regarding procedures and environmental precautions are contained in NorthernStar's Pipeline Waterbody and Wetland Construction and Mitigation Procedures Plan. Directions for accessing NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan via the eLibrary can be found in the response to comment FA2-17.

Drivable berms are just one of the potential BMPs that would be used during construction of the pipeline. The number and locations of drivable berms would be determined based on site-specific conditions in the field at the time of construction activities. Other BMPs, such as silt fence and/or straw bale structures may also be used in place of drivable berms at some locations.
- SA4-36 NorthernStar would obtain approval from the WDFW for use of any additional imported material used to backfill waterbodies at open-cut crossings.
- SA4-37 Dewatering plans would be prepared by the boring contractor prior to conducting borings for waterbody crossings. All applicable permits and approvals would be obtained at that time.
- SA4-38 NorthernStar would prepare site specific plans for all HDD waterbody crossings.

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SA4-39			<p>should only be used where the size of the drainage area is not greater than ¼ acre per 100 feet of barrier length; the maximum slope length behind the barrier is 100 feet; and the maximum slope gradient behind the barrier is 2:1.</p> <p>Straw bale barriers should not be constructed in streams, channels or ditches. Straw bale barriers should only be used where effectiveness is required for less than three months.</p>
SA4-40	2.4.2.3 Associated Above Ground Facilities 12 Pages 2-55 and 2-56	More detail is needed on how to stabilize sites and prevent runoff from bare soils.	Mulch should be applied uniformly over the area to cover 100% of the disturbed area. Hydro mulch application rates are approximately 25-30 lbs per 1000 sf or 1500-2000 lbs per acre. Hydro mulch should be applied with seed and tackifier. If this is not done the application rate should be at the least doubled.
SA4-41	2.6 Environmental Compliance Inspection Pages 2-56 and 2-57 13	References trained personnel for proper implementation of ESC plans etc. The NPDES Construction Stormwater General Permit requires a Certified Erosion and Sediment Control Lead (CESCL).	Add a requirement consistent with Construction Stormwater General Permit Condition of S4.B.4 that requires a CESCL to conduct site inspections. Refer to www.ecy.wa.gov/programs/wq/stormwater for a list of approved training courses.
SA4-42	3.1.9.2 Dredged Material Placement Alternatives Pages 3-53 through 3-58 14	<p>This section states that approximately half (approximately 350,000 cu/yd) of the material dredged from the ship berth will be placed at the Wahkiakum County Sand Pit Disposal site.</p> <p>The Sand Pit disposal site is only authorized to receive 205,000 cubic yards of suitable dredged material. This leaves a balance of approximately 145,000 cubic yards of material for disposal.</p> <p>The Scour Holes at Welcome Slough and Pancake Point may already be at capacity.</p>	Add more analysis and detail on appropriate disposal sites with adequate capacity.

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- SA4-39 We discuss the engine operations of LNG carriers in sections 2.1.1, 4.10.1.1, and 4.11.5.
- SA4-40 Sections 2.4.2.1 and 4.4.2.3 discuss restoration and revegetation. NorthernStar would perform restoration and revegetation activities in accordance with its SWPP in Washington, the FERC staff's Plan,
- SA4-41 See our response to comment SA4-14. NorthernStar would have to implement whatever measures were specified in required NPDES permits.
- SA4-42 The scour holes at Welcome Slough and Pancake Point had capacity at the time of the alternatives analysis and were therefore appropriate to use. The discussion of the Wahkiakum County Sand Pit site has been revised.

K-515

SA4-43	15	4.3.1 Groundwater Resources	The impacts to groundwater quality from a pipeline breach are not addressed. Constituents in natural gas meet the requirements of a hazardous substance as defined by Washington State regulations. In the event of a leak, these gases (particularly methane) could dissolve in groundwater and pose hazards such as explosion when exposed to air.	Add an analysis of pipeline breach and its potential impacts to groundwater. Require Northern Star to develop an aquifer mitigation plan.
SA4-44	16	4.3.2.1 Water Resources Page 4-63	Tributary 5 to Coal Creek is 303(d) listed for temperature. Table 4.3.2.4 indicates pipe construction will be open cut, which has potential for temperature impacts.	Require a different pipe installation method to reduce or eliminate impacts.
SA4-45	17	4.3.2.4 Page 4-88	The requirement for a SWPPP lacks sufficient detail. Northern Star's current SWPPP within the JARPA is not adequate for the scope of this project.	Add a requirement that the SWPPP be complete, consistent with the elements and provides detailed description of the alternative BMPs
SA4-46	18	4.4.2.3 Wetlands Page 4-117	Does not address water quality impacts from vehicle washing areas to prevent spread of noxious and noxious weed contamination.	Add a requirement for SWPP to include in BMPs used during truck washing to prevent water quality impacts.
SA4-47	19	Aquatic Resources 4.5.3.1 4-166	Insufficient details on management of Drilling Mud.	Add a requirement for the SWPPP to include more detail on managing drilling mud and describing collection areas, and dealing with frac-outs.

State Agencies

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- SA4-43 In the event of a pipeline leak, natural gas would be released to the air and would not dissolve in the groundwater. We do not believe an aquifer mitigation plan for a breach of the pipeline is warranted.
- SA4-44 All references to the crossing method that would be used at Tributary 5 to Coal Creek in section 4.3.2 were checked to confirm that the bore method would be used (including table 4.3.2-4). Use of the conventional bore method at Tributary 5 to Coal Creek would include maintenance of a riparian buffer to minimize impacts on the waterbody.
- SA4-45 NorthernStar's SWPPP for pipeline construction within Washington is intended to meet the requirements of the Construction Stormwater General Permit issued by Washington's Department of Ecology in November 2005. Local county requirements are incorporated into this plan. Cowlitz County has adopted the DOE requirements for erosion control. Application would be made to Cowlitz County for approval prior to construction. Furthermore, NorthernStar would implement the FERC Staff's Procedures, and we are recommending that NorthernStar revise its pipeline ESC Plan and SWPPP to include the measures from the FERC's Plan that provide greater protection.
- SA4-46 See our response to comment FA3-10.
- SA4-47 Drilling mud would be managed using standard BMPs. NorthernStar's revised HDD contingency plan contains detailed measures for mitigating frac-outs. Directions for accessing NorthernStar's HDD Contingency Plan (Frac-out Plan) via the eLibrary can be found in the response to comment FA3-13.



ORIGINAL

STATE OF WASHINGTON

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250
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December 11, 2007

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
Public Reference Room
888 First Street N.E., Room 2A
Washington, DC 20426

FILED
FEDERAL ENERGY REGULATORY COMMISSION
2007 DEC 19 P 12:18

Dear Ms. Bose:

Reference: **Bradwood Landing, LLC Docket No. CP06-365-000**
NorthernStar Energy, LLC Docket No. CP06-366-000

The Washington Utilities and Transportation Commission (UTC) welcomes this opportunity to comment on the draft environmental impact statement (EIS) for the Bradwood Landing liquefied natural gas (LNG) terminal and related pipeline proposed by NorthernStar Energy LLC (NorthernStar).

The UTC is an agent of the U.S. Department of Transportation's Pipeline and Hazardous Material Safety Administration (PHMSA) and authorized to inspect interstate pipelines in that capacity. The UTC is also an intervenor in these Federal Energy Regulatory Commission (FERC) dockets.

Our comments focus on the portions of the draft EIS related to the proposed pipeline (the send-out pipeline) that will transport natural gas from the Bradwood Landing LNG terminal to the Williams interstate gas transmission pipeline near Kelso, Washington.¹

Our comments will apprise FERC of environmental and public health and safety issues raised by NorthernStar's proposal to build this pipeline. Our review also addresses issues related to the construction, operation and maintenance of the proposed pipeline pursuant of the Code of Federal Regulation (CFR) Title 49, Part 192 for Transportation of Natural Gas.

Description of the Proposed Pipeline and its Route through Washington State

The draft EIS proposes a 36 mile-long pipeline extending from the LNG terminal at Bradwood, Oregon, to the Williams Northwest pipeline system near Kelso, Washington. Approximately 17 miles of 30-inch diameter pipe would be within Washington State.

¹ Our comments relate to the route of the pipeline referenced as the "proposed pipeline" in Figure 3.1.8-1 on page 3-7 of the draft environmental impact statement.

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State Agencies

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State Agencies

UTC Comments
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The pipeline, as proposed, would cross the Columbia River at Port Westward, Oregon, and extend east through the southern portion of Washington's Willapa Hills to Williams Northwest pipeline approximately three-quarters of a mile east of Interstate 5 and north of Kelso. In addition, eight miles of the proposed route is in close proximity to the exiting Kelso-Beaver (KB) pipeline right-of-way. As proposed, the pipeline would be made of carbon steel, with a maximum operating pressure of 1,280 pounds per square inch.

The proposed route is currently lightly populated (e.g., mostly Class 1). The soil type is mostly silt loam and the terrain is typically a 20 to 30 percent slope. The proposed pipeline is located north of the metropolitan areas of Longview and Kelso.

Comments and Recommendations

The UTC has the following comments and recommendations about the proposed NorthernStar pipeline:

K-517

SA5-1

1. The principal shortcoming of the draft EIS is that the pipeline route has not been selected to avoid areas of soil instability, a common geological feature in Southwest Washington. Soil instability was the cause of a catastrophic failure of the Williams pipeline near Kalama during 1997. The existing KB pipeline right-of-way, which is adjacent to the proposed pipeline route, includes areas of soil instability and KB has a history of monitoring and mitigating soil induced stresses on its pipeline. For example, a section of the KB Pipeline was relocated above ground and supported by piling across a landslide feature.

The geo-hazards report prepared by United Research Services (URS) for NorthernStar identified 30 landslide features to be crossed by the proposed pipeline alignment. The report states the majority of the landslide features are on private property and have not been field-verified due to access issues. This is an area where additional analysis is needed.

UTC Recommendation: In the final EIS, NorthernStar should identify a route that, to the maximum extent possible, avoids areas of soil instability. To the extent that areas of instability cannot be avoided, specific measures should be identified to address this instability.

SA5-2

2. The URS report also estimates that 41,000 feet of horizontal directional drilling (HDD) will be required for crossing rivers, streams, sloughs and roadways. However, we do not believe that sufficient soil analysis throughout the route has been completed. Without this, an accurate assessment of where HDD may be used will not be achieved. This is important because HDD cannot be used in some soil conditions. If those soil conditions are present, then other means of crossing water features on the route will be needed. These other means are typically more environmentally disruptive during construction.

SA5-1

NorthernStar has routed the Bradwood Landing pipeline to avoid areas of soil instability. Although the pipeline would be largely collocated with the KB pipeline, the route deviates from the KB pipeline route in areas instability. Section 4.1.4.3 discusses measures that would be used to mitigate for soil instability. See also our responses to comments SA3-4 and LA7-25.

SA5-2

See our response to comment SA3-4.

UTC Comments
FERC Dockets CP06-365-000 and CP06-366-000
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Page 3 of 4

SA5-2
cont'd
SA5-3

UTC Recommendations:

- NorthernStar should test soils thoroughly to determine where HDD can be used. The results of this testing should be included in the final EIS.
- The criteria that NorthernStar will use to determine both where HDD will be deployed and where the pipeline will be placed above ground should be defined and included in the final EIS.

SA5-4

3. Federal safety rules require operators to protect gas transmission pipelines from external corrosion by installing a cathodic protection system. The rule allows that this system may be placed in operation as late as one year after completing construction (CFR-49-192-455). In this case, however, we believe that re-excavating the pipeline to attach test stations, galvanic anodes, and other components after the pipeline construction will increase soil erosion and effect surface runoff quality. We therefore recommend that NorthernStar install the cathodic protection system on the pipeline at the time of construction.

In addition, cathodic protection systems are susceptible to interference from other systems located nearby or from nearby sources of electrical current. NorthernStar should evaluate possible sources of this interference along its route in the final EIS.

UTC Recommendations:

- To minimize soil erosion and other environmental impacts caused by re-excavation, NorthernStar should be required to install its cathodic protection system at the time of construction.
- The final EIS should address explicitly the potential for interference with its planned cathodic protection systems from sources of current in proximity and describe how it will address this issue in design and operation of the pipeline.

SA5-5

4. Over the past 15 years, Western Washington has experienced dramatic population growth. Previously semi-rural areas now contain housing developments close to pipeline rights-of-way. We encourage the NorthernStar to anticipate increased population density (e.g., class 3 locations) likely to occur in the area north of Longview and Kelso and design its pipeline accordingly.

UTC Recommendations:

- The final EIS should identify the steps NorthernStar will take to mitigate the threat to people and property such as posed by the pipeline in high consequence areas.

SA5-6

- NorthernStar should take the following additional safety measures in potentially high consequence areas through which the proposed pipeline will run:

State Agencies

SA5-3 A final determination on HDD locations will not be made until the final geotechnical analyses have been completed. There are no areas where the pipeline is proposed to be placed aboveground. See also our response to comment FA3-13.

SA5-4 The FERC does not typically impose additional safety conditions other than DOT standards.

SA5-5 As addressed in section 4.11.9.1, if a subsequent increase on population density adjacent to the right-of-way indicates a change in class location, NorthernStar would be requested to reduce the MAOP or replace the segment with pipe of sufficient grade and wall thickness to comply with DOT regulations for the new class location.

SA5-6 The FERC does not typically impose additional safety conditions other than DOT standards.

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FERC Dockets CP06-365-000 and CP06-366-000
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SA5-6
cont'd

- o Install cathodic protection test stations at approximately 2,000 linear foot intervals and reference cells where the pipeline crosses other cathodically protected facilities,
- o Conduct a close interval survey approximately two years after the pipeline is installed. Utilize the data obtained from the close interval survey and compare them with the data collected from annual monitoring and reference cells to determine the frequency of close interval surveys.

SA5-7

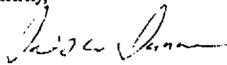
- Conduct an internal inspection survey prior to commissioning the pipeline to identify construction anomalies and establish a baseline for future evaluations.
- Schedule future internal inspections at approximately five-year intervals to identify wall loss from corrosion and third-party excavation damage.

SA5-8

5. In addition to the comments above relating to the EIS, the UTC believes that public health and safety will be protected more fully if NorthernStar includes the following actions in its pipeline construction plan:
- Specify that bedding and shading material around the pipe should be select fill material free of sharp rocks with maximum particle size of 1/2" and containing a large percentage of fines. If the trench bottom is not free from sharp or unusually rough surfaces, the trench should be over-excavated six inches and refilled with select fill material.
 - Inspect pipe coating integrity before lowering the pipe in the trench by "jeeping" and repairing coating with manufacture's recommended material.
 - Radiographically examine 100 percent of the girth welds. For welds that cannot be radiographed, the radiographer should certify that radiographs are impractical and provide written evidence in support of his or her conclusion.

The UTC Staff appreciates the opportunity to review the EIS for the proposed NorthernStar transmission pipeline to further enhance environmental protection and public safety. If you have questions about our response, please contact David Lykken, Acting Pipeline Safety Director at (360) 664-1219 or Al Jones, Pipeline Safety Engineer at (360) 664-1321.

Sincerely,



David W. Danner
Executive Director

K-519

State Agencies

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SA5-7 The FERC does not typically impose additional safety conditions other than DOT standards.

SA5-8 Section 2.4.2.1 includes the General Pipeline Construction Techniques that NorthernStar would use during installation of its pipeline, including requirements for padding the pipeline in stony soils, pipeline coating, and visual and radiographic inspection of pipeline welds.

ORIGINAL



State of Washington
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Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, D.C. 20426

Re: Draft Environmental Impact Statement for the Bradwood Landing Liquefied Natural Gas Terminal and Pipeline Project (Docket No. CP06-365-000, et al.)

Dear Mrs. Bose:

Upon review of the Bradwood Landing Draft Environmental Impact Statement (DEIS), the Washington Department of Fish and Wildlife (WDFW) has many concerns with regard to the proposed project. WDFW believes fish and fisheries-related impacts will occur during construction/implementation, daily operations, and maintenance.

The DEIS addresses many items of concern, but in many cases, WDFW feels the discussion is inadequate. Most prominent of these is that restrictions to sport and commercial fisheries, through river closures, and lost harvest opportunities are only briefly addressed. The closure around the vessel in transit will negatively impact intensive sport salmon, sport sturgeon, and commercial fisheries. Additionally, establishment of the docking site will likely close a significant portion of one of the most popular spring chinook sport fishery locations in the lower Columbia River. Further, discussion regarding associated impacts to Selected Area Fisheries (SAFE) harvest and general interception of hatchery fish, preventing them from entering tributaries, is poorly addressed. Restricted harvest of hatchery fish is potentially counter to the goals of the Lower Columbia River Fish Recovery Board (LCFRB) Salmon Recovery Plan (www.lcfwb.gov/wd_us) and the initial recommendations of the Hatchery Scientific Review Group (HSRG).

WDFW categorized its concerns into three main areas: 1) Construction-related, 2) Operations-related, and 3) Mitigation. These are included. WDFW assumes that the Construction impacts will be ephemeral and limited to the proposed site only. While WDFW prefers HDD as the preferred method of pipeline installation, there is assumed "frac-out" risk that would have deleterious effects to spawning grounds. WDFW assumes that the Operations impacts will be on going, including maintenance dredging at the terminal, but remain within in the proposed "footprint". Shipping and related river closures fall in this category. WDFW assumes that mitigation is on going and will be commensurate with the potential impacts of the project.

WDFW views the proposed mitigation for the overall project, specifically on the Washington side, as being grossly inadequate. First of all, it is unclear if the \$50,000,000 SEI is guaranteed or is voluntary. Additionally, WDFW has concerns that the mitigation site at the mouth of Delamater Creek is adequate in magnitude or benefits to all affected species (including smelt and sturgeon) and affected habitat.

Regards,

Tim Rymer
Regional Habitat Biologist
Washington Department of Fish and Wildlife

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K-520

SA6-1

SA6-2

SA6-3

SA6-4

State Agencies

6

SA6-1 The project should not have significant impacts on commercial or recreational fishing. The project would not result in restrictions on fishing activities outside of the moving safety and security zone around LNG carriers in transit in the waterway to the proposed Bradwood Landing terminal, and there would be no river closures. Nor would the safety and security zone around an LNG carrier at dock at the terminal cause the closure of any popular nearby spring Chinook sport fishing areas. See section 4.7.1.4. Significant impacts on fish movements are not expected as a result of operation of the proposed project. Potential impacts on salmon due to construction and operation of the proposed project are discussed in section 4.5.2.1.

SA6-2 Section 4.5.3.1 has been revised to include a discussion of potential impacts on spawning habitat due to a frac-out. Implementation of NorthernStar's HDD Contingency Plan would minimize potential impacts on salmonids if a frac-out were to occur. Directions for accessing NorthernStar's HDD Contingency Plan (Frac-out Plan) via the eLibrary can be found in the response to comment FA3-13.

All operational activities authorized by the FERC would occur within the proposed project footprint. During operation of the project, if circumstances were to result in changes to the area impacted by the proposed project, NorthernStar would be required to file a revision with the COE requesting authorization of the proposed project changes. In addition, changes to the area or volume of sediment being dredged would require reinitiating formal consultation with the NMFS.

Adequacy of mitigation is addressed in the response to comment FA2-10.

SA6-3 The general adequacy of NorthernStar's proposed compensatory mitigation for the project is addressed in the response to comment FA2-10. NorthernStar's SEI is not a part of the compensatory mitigation for unavoidable impacts associated with the project. Although it was proposed by NorthernStar as a voluntary measure to provide a net benefit to the lower Columbia River, the SEI is part of the proposed action. To this end, NorthernStar has indicated that multiple agencies would make the SEI a required component of the project through their permits. See also our response to comment FA4-12.

SA6-4 See our response to comment FA2-10.



THEODORE R. KLONIGSKI
GOVERNOR
May 9, 2008

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St. N.E., Room 1A
Washington, D.C. 20426

Re: Supplemental Draft Environmental Impact Statement
Bradwood Landing LLC Docket No. CP06-366
Northern Star Energy LLC Docket Nos. CP06-366, CP06-376
and CP06-377

Dear Secretary Bose:

SA7-1

On behalf of the State of Oregon, I request that the Federal Regulatory Energy Commission (FERC) issue a supplemental Draft Environmental Impact Statement (DEIS) for the Liquefied Natural Gas (LNG) import terminal facility at Bradwood Landing and its associated pipelines.¹ I believe that a supplemental DEIS (SDEIS) is required under the regulations of the Council on Environmental Quality (CEQ) on the National Environmental Policy Act (NEPA). 40 CFR § 1502.9(c).

As you know, the State of Oregon previously submitted comments on the Draft Environmental Impact Statement for this project, to help ensure that state standards and concerns are addressed by the developer and by the Federal Energy Regulatory Commission. As we explained in those comments, the Bradwood Landing DEIS is incomplete and flawed in a number of respects. We particularly noted in our cover letter to our comments that "any mitigation plan or other document that will be relied on by FERC to determine that the facility meets licensing criteria must be included in the DEIS and circulated for meaningful review before adoption of the final EIS." We also stated:

As an example of the inadequacy of the DEIS, large portions of the mitigation for habitat, wetlands, archeological impact, landslide protection and emergency planning are still unknown. Indeed, many supporting documents for the licensing decision will be produced after the opportunity for comment on the DEIS has closed. This is a fundamental process flaw.

¹ The State of Oregon supports the same request made by Columbia Riverkeeper et al. in the letter to FERC dated April 24, 2008.

State Agencies

SA7-1 See our response to comment CO15-1.

K-521

State Agencies

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SA7-1
cont'd

1. The CEQ regulation requires a Supplemental DEIS in this context.

40 CFR § 1502.9(c) provides:

(c) Agencies:

(1) Shall prepare supplements to either draft or final environmental impact statements if:

(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or

(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

For purposes of NEPA, the concept of "significance" is defined by the regulations of the Council on Environmental Quality.²

² In 40 CFR § 1508.27, CEQ defines the term "significantly" as follows:

"Significantly" as used in NEPA requires considerations of both context and intensity:

(a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

(b) Intensity. This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

(2) The degree to which the proposed action affects public health or safety.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

Request to FERC for Issuance of a Supplemental DEIS

Page 2

May 9, 2008

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State Agencies

SA7-1
cont'd

FERC has its own set of NEPA regulations, *see* 18 CFR §§ 380.1 through 380.16. FERC's NEPA regulations, however, do not appear to explicitly address or implicitly bear on the standard for a supplemental EIS established in the CEQ regulation quoted above.

The policy underpinning of the supplemental EIS requirement was well articulated in *Sierra Club v. Marsh*, 714 F Supp 539, 571 (DC Maine 1989), *appeal dismissed*, 907 F2d 210 (1st Cir 1990):

NEPA is an environmental "full disclosure" law. The supplemental EIS process is designed to ensure that agencies act with "complete awareness . . . of the environmental consequences of [their] action[s]."
Essex County Preservation Ass'n v. Campbell, 536 F.2d 956, 961 (1st Cir. 1976) (citation omitted), *aff'g*, 399 F. Supp. 208 (D. Mass. 1975) (ordering supplemental EIS despite inability to determine, as a matter of law, that new information would have significant environmental effect; but public should have opportunity to analyze and assess it).

a. The LNG import terminal facility project has changed substantially since the DEIS was issued.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

K-523

As noted in the April 24, 2008 letter from Columbia Riverkeeper, the Bradwood Landing LNG import terminal facility and associated pipeline project has changed in four key respects:

SA7-2

1. **Unscreened water intakes:** The DEIS contained a recommended condition that "only LNG ships that are retrofitted to use the screened water supply system at the berth are allowed to unload cargo at the Bradwood Landing LNG terminal." DEIS at 4-145. The assessment in the DEIS of environmental effects of the project was presumably based on the assumption that all LNG ships would use screened water intakes. The applicants have recently taken the position that not all incoming LNG tankers will use screened ballast and cooling water intakes. As stated in the applicants' April 8, 2008 letter to FERC,

The goal of Applicants' on-site water system program is to ensure that as many LNG carriers as practicable have the ability to use the on-site system. * * *

Applicants have proposed, as part of the Project, to provide reasonable contract incentives to encourage equipping or retrofitting LNG carriers for compatibility, but it is not in Applicants' control to require all LNG carriers to retrofit. Despite these reasonable contract incentives proposed by Applicants, it is not likely that all LNG carriers making deliveries to the Bradwood Landing terminal under spot market contracts, short term contracts, or as replacement carriers to long term contracts will be equipped for the on-site water system.³

The impacts of unscreened water withdrawals on threatened and endangered salmon were not addressed in the DEIS, and the public has never had a chance to comment on that substantial project change. Hence, the environmental effects of that change must be evaluated in a supplemental DEIS.

SA7-3

2. **Changed pipeline route:** The pipeline route is expected to change. NorthernStar has apparently acknowledged that many alterations of the route are underway. Those changes could significantly alter the nature of the environmental, public-safety-related and economic impacts of the project, which must be evaluated in a supplemental DEIS.

³ Response of NorthernStar Energy LLC and Bradwood Landing LLC to the FERC Staff's Recommended Mitigation Measure 24 in the DEIS. Letter dated April 8, 2008, pp 2-3.

K-524

State Agencies

SA7-2

After our issuance of the draft EIS, NorthernStar indicated that not all LNG carriers may be retrofitted to connect to the proposed ballast and cooling water supply system. Therefore, our analysis and discussion of potential impacts on water quality and aquatic resources (which includes salmonids) in sections 4.3.2.2 and 4.5.2.1 has been revised. We conducted additional analysis of entrainment and water quality impacts at the wharf without the use of the filtered water supply system and NMFS-approved screens. Due to the potential impacts on sensitive aquatic resources at the terminal, we are recommending that the Commission Order include a condition to require that NorthernStar develop a plan to deliver screened water to LNG carriers at the terminal. We are also recommending that NorthernStar conduct post-installation tests of all intake screens at the terminal, and develop a monitoring and reporting program to assess the efficacy of the screened water supply system at minimizing entrainment and impingement. In addition, we are recommending that NorthernStar develop performance standards for water quality impacts associated with LNG carrier discharges of cooling water at the wharf. We will conduct additional detailed analyses of the screened water supply system and the performance standards in our revised BA and EFH Assessment.

SA7-3

The proposed pipeline route has not changed since the draft EIS was issued. The pipeline alignment in the final EIS is the same alignment that was in the draft EIS. Changes to the pipeline route that may occur after the final EIS is issued would likely be relatively minor and fall within the corridor that has been assessed for wetland and wildlife impacts (where access has been granted). All route realignments, with certain exceptions described in recommended condition no. 6 in section 5.2, would require written approval from the Director of OEP before construction in or near that area.

SA7-4 | 3. **Deposit of dredge spoils:** Dredge spoils will now be placed entirely on the Bradwood site; it appears that deposition elsewhere in Wahkiakum County will not occur. The environmental effects of that substantial change must be evaluated in a supplemental DEIS.

SA7-5 | 4. **Open regasification:** The regasification system may be altered to allow open regasification. That substantial change will result in greatly increased amounts of effluent discharged into the Columbia River. The environmental effects of that increased effluent on fish species and other values are unknown and must be evaluated in a supplemental DEIS.

SA7-6 | The standard for requiring a supplemental EIS when a project has substantially changed was explained by the United States Supreme Court in *Marsh v. Oregon Natural Resources Council*, 490 US 360 (1989). The decision to prepare a supplemental EIS is similar to the decision whether to prepare an EIS in the first instance: "If there remains 'major Federal action[n] to occur, and if the new information is sufficient to show that the remaining action will 'affec[t] the quality of the human environment' in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared." *Id.* at 374.

An agency violates NEPA when it fails to give adequate and timely consideration to the significance of new circumstances. *NRDC v. United States Army Corps of Engineers*, 399 F Supp 2d 386, 405 (SDNY 2005) (dredging action alleged to have changed due to EPA consent order requiring a remedial investigation/feasibility study). A party challenging an agency's failure to prepare a supplemental environmental impact statement need demonstrate only that there is a substantial possibility that the changed agency action may have significant new impacts. *Id.* at 411.

An alternative that entails "a different configuration of activities and locations" from that contained in a previous EIS must be presented in a supplemental EIS. In *Dubois v. United States Department of Agriculture*, 102 F3d 1273 (1st Cir 1996), *cert den* 521 US 1119 (1997), the First Circuit explained that in contrast to "a reduced version of a previously-considered alternative," a new alternative reflected a different proposed configuration must be publicly aired, because "public commenters might have pointed out, if given the opportunity – and the Forest Service might have seriously considered – wholly new problems posed by the new configuration (even if some of the environmental problems present in the prior alternatives have been eliminated)." 102 F3d at 1292-93.

The four changes listed *ante* (unscreened intake water, changed pipeline route, different location for putting dredge spoils, and open gasification system)

Request to FERC for Issuance of a Supplemental DEIS

Page 5
May 9, 2008

State Agencies

7

- SA7-4 | We considered the alternative of placing all of the dredged material from the ship berth and maneuvering basin at the LNG terminal site in the draft EIS. Up to 205,000 cubic meters of dredged material may still be placed at the Wahkiakum County Sand Pit site. However, even if all of the dredged material is placed at the LNG terminal, aside from the raising the grade an additional 5 feet, there would not be any significant changes in impacts at the LNG terminal site resulting from the additional dredged material.
- SA7-5 | NorthernStar has not filed any proposed changes to their regasification process with the FERC. NorthernStar proposed SCVs to regasify the LNG and that is the technology that we have analyzed in our EIS.
- SA7-6 | The submittal by NorthernStar on April 16, 2008 did not contain "substantial" amounts of new information or information that reflected substantial changes in the project.

State Agencies

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SA7-6
cont'd

represent substantial changes in the project that are relevant to environmental concerns. The CEQ regulation provides that "[a]gencies [s]hall prepare supplements to either draft or final environmental impact statements if [t]he agency makes substantial changes in the proposed action that are relevant to environmental concerns." 40 CFR § 1502.9(c). Hence, FERC is *required* by the CEQ regulation to issue a Supplemental Draft Environmental Impact Statement.

As noted by the First Circuit Court of Appeals with respect to that CEQ regulation, "[t]he use of the word 'shall' is mandatory, not precatory. It creates a duty on the part of the agency to prepare a supplemental EIS if substantial changes from any of the proposed alternatives are made and the changes are relevant to environmental concerns." *Dubois v. United States Department of Agriculture*, 102 F3d at 1292.

b. Significant new information is relevant to environmental concerns and bears on the proposed action and its impacts.

Significant new information has been generated both by the applicants themselves and by the Oregon Department of Energy concerning the proposed LNG import terminal facility and its environmental effects.

On April 16, 2008, NorthernStar and Bradwood Landing submitted to FERC its Motion for Leave to Respond and Response of NorthernStar Energy LLC and Bradwood Landing LLC to Comments Filed with the Commission Regarding the Draft Environmental Impact Statement. The motion to file a response to comments included four large appendices containing voluminous information, which NorthernStar and Bradwood Landing have characterized as "additional information" or information that has been "revised."

A sense of the scope of the "additional" and "revised" information contained in the motion submitted by NorthernStar and Bradwood Landing is conveyed in the Index of Attachments:

Index of Attachments

- Attachment A: Applicants' Responses to Comments on the DEIS re General Matters**
- Attachment A-1: Revised DEIS Table 1.3-1
- Attachment A-2: Revised Draft of DEIS Section 2
- Attachment A-3: Memorandum re Washington Forested Wetland Conversion

State Agencies

SA7-6
cont'd

- Acreage Discrepancies
- Attachment A-4: Revised Frac-out Mitigation Plan
- Attachment A-5: FERC Staff's Recommended Mitigation Condition 20 Response
- Attachment B: Applicants' Responses to Comments on the DEIS re Air Quality**
- Attachment B-1: Revised Bradwood Landing Construction Emissions Table
- Attachment B-2: Revised DEIS Table 9.1-7
- Attachment B-3: Northwest Pipeline LNG Interchangeability Meeting Slides
- Attachment B-4: LGN South Coast Air Basin Impact Slides, Jan. 06
- Attachment B-5: Revised DEIS Table 4.10.1-4
- Attachment C: Applicants' Responses to Comments on the DEIS re Design**
- Attachment C-1: Applicants' Response to Comments of Jerry Havens
- Attachment D: Applicants' Responses to Comments on the DEIS re Water Suitability Assessment**
- Attachment D-1: Columbia River Navigation Channel – Analysis of Vessel Arrival Patterns
- Attachment D-2: Columbia River Navigation Channel – Analysis of Navigation Protocols & Priorities

NorthernStar and Bradwood Landing is seeking leave to file its response to comments, given that such response comments are outside the normal NEPA process. By definition, the additional and revised information that NorthernStar and Bradwood Landing has submitted in its reply comments was not considered in the Draft Environmental Impact Statement. Hence, the public has not had a chance in the NEPA process to evaluate the additional and revised information and comment on it. Such additional and revised information is "significant" within the meaning of the CEQ regulation and must be evaluated in a supplemental DEIS.

The current scenario, in which NorthernStar and Bradwood Landing have submitted additional and revised information that the public has had no opportunity to review within the NEPA process, despite the bearing of that

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SA7-6
cont'd

information to the environmental effects of the proposed project, clearly demonstrates a need for issuance of a Supplemental DEIS.

In *Kettle Range Conservation Group v. United State Forest Service*, 148 F Supp 2d 1107 (ED Wa 2001), the court granted an injunction prohibiting the United States Forest Service from implementing a "Douglas-fir Bark Beetle Project" until the Forest Service had prepared a supplemental EIS. 48 F Supp 2d at 1139-40. And in *Portland Audubon Society v. Babbitt*, 998 F2d 705, 708 (9th Cir 1993), the Ninth Circuit held that a supplemental EIS should have been prepared regarding the effect of timber harvest on the spotted owl, "because the scientific evidence available to the Secretary in 1987 raised significant new information relevant to environmental concerns, information bearing on the impacts arising from the ongoing implementation of the land use decisions driven by the original TMPs [timber management plans]."

SA7-7

In addition to the significant additional and revised information submitted by the applicants, the Oregon Department of Energy has developed the attached report, entitled "Response to Governor Kulongoski's Request for LNG and Natural Gas Review, ODOE, May 7, 2008." That report concerns the need for and costs, both fiscal and environmental, of an LNG import terminal facility in Oregon. The report contains significant new information bearing on the impact of the proposed LNG import terminal facility on the human environment. The report discusses the alternative of new pipelines to bring natural gas from domestic Rocky Mountain sources to Oregon at less cost and with fewer adverse effects on the environment. The report addresses the carbon footprint of LNG generally and the carbon dioxide emissions in Oregon caused by the proposed LNG import terminal facility. That new information is significant, as defined by the CEQ regulation, and hence it must be evaluated in a supplemental DEIS.

More specifically, the ODOE report concludes that natural gas will continue to be needed in Oregon for the foreseeable future, but that the three LNG import terminal facilities proposed in Oregon are not the only viable option to assure needed natural gas supplies are available. There is an over-capacity of existing LNG facilities in the United States, and hence Oregon LNG facilities would likely be underutilized. Furthermore, high oil prices and competition from Asian countries competing for natural gas supply mean that the price of Pacific Basin LNG would greatly exceed the price of North American natural gas. Domestic natural gas from North American could provide adequate natural gas to meet Oregon needs for the foreseeable future. Three new proposed pipelines from the Rocky Mountain gas fields, for example, could provide natural gas more

State Agencies

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SA7-7 We have incorporated information from the report titled, *Response to Governor Kulongoski's Request for LNG and Natural Gas Review* (ODE, May 7, 2008) into sections 3 and 4.10.1 of the final EIS.

economically for the Oregon and California markets than the three LNG terminals.

SA7-8 In addition, the report indicates that LNG has significantly higher life cycle CO2 costs than domestic natural gas, due to the processes used to liquefy and regasify the natural gas and the large transportation distances involved in shipping LNG to Oregon. It is likely that CO2 emissions from regasification at an LNG terminal in Oregon would be included in a regional cap and trade system and thus could adversely affect Oregon's ability to meet its CO2 reduction targets under a state law passed in 2007 (House Bill 3543) and under the Western Climate Initiative. In general, the Rocky Mountain pipelines appear likely to have less environmental impact on Oregon and lower levels of life cycle greenhouse gas emissions than the three LNG facilities proposed for Oregon to serve the same markets. The information contained in the ODOE report is significant new information that must be evaluated in a supplemental DEIS.

SA7-9 In *Blanco v. Burton*, 2006 US Dist Lexis 56533 (ED La 2006) (impacts of Hurricanes Katrina and Rita resulted in new information supporting a call for a supplemental EIS), the court agreed that the plaintiffs were likely to prevail on their NEPA claim that a supplemental EIS was required:

The Court of Appeals has stated, "The principal factor an agency should consider in exercising its discretion whether to supplement an existing EIS because of new information presents a picture of the likely environmental consequences associated with the proposed action not envisioned by the original EIS." *Louisiana Wildlife Fed'n, Inc. v. York*, 761 F.2d 1044, 1051 (5th Cir. 1985) (quoting *Wisconsin v. Weinberger*, 745 F.2d 412, 418 (7th Cir. 1984).

In determining whether to issue a supplemental EIS, FERC is required under NEPA to take a "hard look" at the environmental impacts of substantially changed actions and significant new information. See *Hughes River Watershed Conservancy v. Glickman*, 81 F3d 437, 446 (4th Cir 1996) (Army Corps of Engineers failed to take a "hard look" at problem of zebra mussel infestation resulting from dam project; case remanded for determination regarding supplemental EIS).

CONCLUSION

SA7-10 As Governor of the State of Oregon, I request that FERC issue a Supplemental Draft Environmental Impact Statement to address the substantial

State Agencies

SA7-8 We have added a discussion of lifecycle GHG emissions for LNG facilities to sections 3.1.3.3 and 4.10.1 of the final EIS.

SA7-9 We do not believe that substantial new information exists to support the need for a supplemental draft EIS.

SA7-10 See our responses to comments SA7-1 through SA7-9.

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State Agencies

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SA7-10
cont'd

changes in the proposed action and the significant new information relevant to environmental concerns bearing on the proposed action. Such new information includes not only the voluminous material that NorthernStar and Bradwood Landing have themselves identified and submitted to FERC in the form of additional and revised information not previously included in the DEIS, but also the attached report from the Oregon Department of Energy addressing considerations of need, cost and the carbon footprint consequences if the proposed LNG import terminal facility is built in Oregon.

In closing, I reiterate the comment I made in my previous letter accompanying the DEIS comments of Oregon agencies:

Ultimately, the decision to site terminals requires the full engagement of the federal government, the state and the communities where facilities are proposed. Only by working together through the siting, environmental assessment and permitting processes can we make sound decisions about the appropriateness of any proposed LNG terminal.

In that spirit of cooperation and coordination, I look forward to an affirmative resolution of Oregon's request that a Supplemental Draft Environmental Impact Statement be prepared for the Bradwood Landing LNG import terminal facility and associated pipelines.

Sincerely,



THEODORE R. KULCYNOSKI
Governor

LOWER COLUMBIA
ECONOMIC DEVELOPMENT
COUNCIL

Encouraging Coordinated Growth Now, and in the Future

November 12, 2007

Federal Energy Regulatory Commission
Attn: Kimberly D. Bose, Secretary
888 First Street NE, Room 1A
Washington, DC 20426

Ref. Docket# CP06-365-000

ORIGINAL
OFFICE OF THE
SECRETARY
FEDERAL ENERGY
REGULATORY COMMISSION
NOV 9 P 2 48
(file:///C:/Users/PHR/My Documents/letter.doc)

To Whom It May Concern:

On behalf of the Board of Directors of our Economic Development Council I would like to respond to the proposal before you concerning Bradwood Landing and Northern Star Natural Gas.

For the past 2 1/2 years we have taken a wait and see attitude about the building of an LNG plant across the river from our County. We have studied all of the pros and cons, safety and water traffic issues etc., and we have visited with Northern Star officials.

With our understanding that your county will benefit greatly with a massive tax increase, our board has decided that we want to support the building of this facility at the requested site for the following reasons:

LA1-1

1. Northern Star has committed the docking of three tug boats in Cathlamet. These boats would constitute 35 obs, plus rent and remodeling of an old building. In addition to maintenance, fuel, food, etc. This operation would greatly enhance our job growth and waterfront development.
2. Northern Star has committed fifty-five living wage jobs at the plant. If our county could earn ten to fifteen of those jobs along with the tug boat jobs, it would make Bradwood Landing our fourth largest employer. See attached Wahkiakum County list of top employers.
3. With the decline in timber revenues that our County uses to fund mandated services, our County medical clinic is in jeopardy. We need industry, growth and funds to help make up this loss in revenue and services.
4. Northern Star has committed to allow Wahkiakum County to bid on manufacturing items to be used in building their plant and giving us a start up business, and development of a business park. In addition to job training for our High School students.
5. Northern Star has committed \$100,000.00 a year to our Wahkiakum Community Foundation to be used to assist with safety issues and address County needs. They have already funded the first payment and will continue annually until the plant comes on line.
6. Northern Star has committed \$500,000.00 a year after the plant is operational for the life of the plant to be used as the County Foundation submits requests for needs.
7. We feel that one of our biggest assets is the river and its ship traffic. Many of our landowners and tourists come to Wahkiakum County to see the ships and river traffic. We feel it will not hurt our growth but add to it.

Thank you for considering our needs and requests.

Cordially,


Richard Erickson
Executive Director

P.O. Box 243 * Cathlamet, WA 98612 * Phone 360-795-3996 * FAX 360-795-3944

Local Agencies

1

LA1-1 Comment noted.

K-531

Local Agencies

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Bradwood Landing LLC) Docket No. CP06-365-000
Northern Star Energy LLC) Docket Nos. CP06-366-000
CP06-376-000
CP06-377-000

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT BY THE
CITY OF WARRENTON, OREGON

Movant-Intervenor¹ the City of Warrenton, a municipal corporation, through its City Commission, the duly elected governing body for the City of Warrenton (the "City" or "Warrenton"), hereby submits its comments on the Draft Environmental Impact Statement ("DEIS").

Background

As described in the DEIS, the City of Warrenton, Oregon is a municipality consisting of approximately 17 square miles in geographic jurisdiction located at the mouth of the Columbia River. It is the most northwesterly City in Oregon. The former Town of Hammond is merged into Warrenton. The City's year round population is currently 4,645, however based on proposed development plans this is expected to increase to over 7,000 in the next several years. The summer time population can exceed 10,000. The City is directly and significantly impacted by the proposed vessel transits carrying liquefied natural gas ("LNG") to the proposed Northern Star Natural Gas LLC ("NSNG") facility at Bradwood Landing, located at approximately river mile ("RM") 38 upstream.

Included within or immediately adjacent to Warrenton are a diverse number of private and critical government occupancies. Among these are Fort Stevens (Oregon's largest State

¹ On or about July 5, 2006, the City of Warrenton's timely Motion to Intervene was docketed by the Federal Energy Regulatory Commission (the "Commission") as Accession No. 20060706-0160, but to date the City has not been placed on the Service List.

K-532

Park), Warrenton-Astoria Regional Airport (Clatsop County's only commercial airport), Camp Rilea Armed Forces Training Center (Oregon's largest active military reservation), a 100 bed juvenile corrections facility, and two major recreational and commercial fishing boat mooring basins.

Public Safety is provided by local police and fire departments. The Warrenton Police Department is comprised of eight full-time officers and several reserve officers, who are responsible for 24 hour protection of the City's 17 square mile area. The Warrenton Fire Department consists of two full-time personnel, 32 volunteer firefighters, and seven response vehicles. The Fire Department's service area is 28 square miles and includes the numerous facilities noted above. In addition, through existing Mutual Aid Agreements, Warrenton supports the Knappa-Svensen-Burnside Rural Fire Protection District, in which the proposed LNG terminal would be located. The City currently has no marine law enforcement or firefighting capability.

The City has very limited funding resources available for public safety services. It relies on limited property tax revenues that are used primarily for existing personnel expenses. In recent years equipment purchases have depended on grants, loans, **and serial levies.**

The City's public safety responsibility extends for approximately seven miles along the southerly bank of the Columbia River beginning at approximately Clatsop Spit (Buoy 14) then continuing eastward to Smith Point. Approximately four and one-half miles of the Columbia River shipping channel from Hammond Marina east to the Astoria city limits are within the municipal jurisdiction of the City of Warrenton. Warrenton is the first municipality potentially impacted once the LNG Carrier enters the Columbia River. As described in the DEIS (Section 4.7.1), portions of the City are located within all three Zones of Concern, including the Hammond and Warrenton waterfront within Zone 1 (p. 4-273), the Warrenton Waterfront Trail, Carruthers' Park and the community library within Zone 2 (p. 4-278), and the police and fire

Local Agencies

stations are located within Zone 3 (p. 4-327). Within all three zones are many areas where people congregate outdoors including essentially the entire route from Fort Stevens State Park, along the River Walk trail, in the area of Hammond Boat Basin and at Carruthers' Park. Each of these public assembly areas are sufficiently close to the vessel transit route to warrant heightened safety and security measures.

Procedural History

On May 24, 2006, during the Pre-Filing Process, the City of Warrenton wrote to the Commission to advise that the City had a number of safety related concerns regarding the potential transit of LNG carriers through the corporate limits of the City of Warrenton, which would occur should the Bradwood Landing site be approved by the Commission. A copy of that May 24, 2006 letter was also included in the Safety Advisory Report submitted to the Commission by the Oregon Department of Energy, attached as Appendix K to the DEIS. The City timely moved to intervene, which motion was docketed July 5, 2006 as Accession No. 20060706-0160. Since that time, both Warrenton's Police Chief and Fire Chief have participated in various meetings and workshops held in conjunction with preparation of the U.S. Coast Guard Waterway Suitability Assessment Report ("WSR") dated February 28, 2007, attached as Appendix H to the DEIS, and with respect to development of an Emergency Response Plan ("ERP").

Comments on the DEIS

LA2-1

The DEIS repeatedly refers to the same discussion concerning waterway safety and security throughout the voluminous report. Specifically, the DEIS recognizes significant potential impacts within Zones 1 through 3 due to an accidental or intentional breach of an LNG vessel resulting in a release of LNG during transit or while at the berth. It acknowledges the risk of severe consequences, with injuries ranging from mild to fatal, being most severe in Zone 1 and decreasing outward through Zones 2 and 3. See, e.g., DEIS, p. 4-322. Yet, the DEIS

Local Agencies

LA2-1

We have updated section 4.11.5.5 to include a condition which would require NorthernStar to comply with all requirements set forth by the COPT

LA2-1
cont'd

uniformly concludes that "with the implementation of the safety and security measures and conditions outlined in the Coast Guard's WSR (see Appendix H), an LNG release along the waterway would be highly unlikely." *Id.* See also DEIS, p. 4-273 ("Effects on structures within Zone 1 would be most severe, while buildings within Zone 3 would be less impacted. However, with implementation of the mitigation measures described in the Coast Guard's WSR, an LNG release along the waterway would be highly unlikely."); DEIS, p. 4-275 ("With the implementation of the safety and security measures outlined in the Coast Guard's WSR, it is highly unlikely that there would be a release of LNG from a passing LNG ship that would lead to a spill and related pool fire affecting planned commercial or residential developments along the waterway."); DEIS, p. 4-279 ("Those facilities within Zone 1 could sustain damages to structures, features, or vegetation. Facilities within Zone 3 would be less affected. However, with the implementation of the safety and security measures outlined in the Coast Guard's WSR, the chance of a spill would be extremely remote.").

As a result of these findings, the FERC staff made a number of recommendations which are described in detail in Sections 4.11.5.5 and 4.11.6 of the DEIS (pp. 4-429 through 4-436) and further documented in Section 5.2, Conditions 42, 62 and 63. These conditions fail to properly acknowledge, however, that the Coast Guard measures are *necessary requirements* and not simply preliminary recommendations with the details to be worked out later. Compare DEIS, p. 4-432 ("the WSR recommends additional facilities and infrastructure to make the waterway suitable for LNG marine traffic") with WSR, App. H ("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 ... [and] must be put into place").

LA2-2

Additionally, the DEIS minimizes and generalizes the specific requirements outlined by the Coast Guard. For example, on page 4-432, the DEIS identifies one item as "augmentation of shoreside firefighting capabilities to provide protection services to the facility as well as

Local Agencies

2

LA2-2 By necessity, the EIS must summarize information from many sources. The complete WSR is provided as Appendix H.

LA2-2
cont'd

communities along the river" when the original WSR (p.4 of 6) stated "shore side firefighting resources and training will need to be augmented ... [including] adequate cost-sharing arrangements for project related training, equipment, maintenance, and staffing ... for all communities impacted by the project."

LA2-3

Representatives of NSNG have had approximately two years to make firm commitments to state, county and local law enforcement and fire agencies concerning these requirements, and have not done so. The proposed conditions that the WSR be updated annually and NSNG commit prior to commissioning to implement the required measures is simply too little too late. Additionally, the conditions recommending the Emergency Response Plan ("ERP") and cost-sharing plan be submitted prior to initial site preparation likewise do not provide sufficient certainty for local communities, like Warrenton.

As documented throughout the DEIS, implementation of these measures are critical to the viability of the project and the validity of the DEIS assessment. Absent binding agreement with the state, county and local fire and police agencies concerning security and safety requirements, the project cannot proceed and the entire DEIS safety and security analysis is rendered meaningless. Therefore, NSNG should be required, *prior to issuance of the final order issuing certificates ("Order" or "Certificate")* to reach an agreement in principle, in a form acceptable to each respective agency, with each state, county and local municipality affected on the level of resource funding NSNG will commit for safety and security requirements including, without limitation, capital requirements for new equipment, resources for additional staff, and training for all affected personnel (both professional and volunteer). These critical decisions cannot and should not be put off until after the Certificate issues.

The Commission cannot fulfill its statutory duty to address state and local safety considerations required by 15 U.S.C. § 717b-1 (Section 311(d) of the Energy Policy Act of 2005) by simply stating that these important details will be worked out after the Certificate issues. See

Local Agencies

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LA2-3 See our response to comment PM1-1.

LA2-3
cont'd

DEIS, Appendix K, Response of the Federal Energy Regulatory Commission to the Safety Advisory Report of the Oregon Department of Energy for the Bradwood Landing Project (referring to proposed Conditions 42, 62, and 63). The statute requires meaningful resolution of state and local safety considerations "prior to issuing an order pursuant to section 717b." See 15 U.S.C. § 717b-1(b) and (c). Therefore, NSNG must be required to address Warrenton's requirements (as well as the other jurisdictions affected), outlined in its May 26, 2006 letter, and commit to the funding necessary to implement these requirements, prior to issuance of any Order approving the project.

LA2-4

Secondly, with respect to "the current capacity of the local public services to respond to an incident or fire at the LNG terminal," the DEIS recognizes "that significant gaps exist in fire fighting capacity for both shore and water side fire fighting response." DEIS, p. 4-342. These gaps were also described in the State Advisory Report (Appendix K) filed pursuant to 15 U.S.C. § 717b-1. The DEIS states that "NorthernStar has indicated that trained personnel and fire fighting equipment would be maintained at the LNG terminal in the event of an emergency." *Id.* However, there is nothing in the DEIS to indicate that NSNG has committed to anything more than that which is required by applicable regulations and requirements found in 49 C.F.R. Part 193 and NFPA 59A. The proposed solution to address this acknowledged issue, the requirement to produce an ERP prior to construction, is simply inadequate.

Given the lack of local capacity and the distance from supporting fire fighting services, NSNG must be required to provide enhanced fire protection in the form of an Industrial Fire Brigade as described in NFPA 600. It is simply insufficient that operations and maintenance personnel will be trained in safe shutdown and evacuation procedures, etc. as already required by applicable regulations. If an incident occurs at night, when only a limited operations crew is working, there may be insufficient personnel to man all of the fire fighting equipment likely to be present. Additionally, by conditioning the Order on implementation and maintenance of an

Local Agencies

LA2-4 As discussed in section 4.11.6, NorthernStar would be required to develop an ERP that would be approved by the FERC before any final approval to begin construction. See our response to comment PM1-1.

LA2-4 cont'd Industrial Fire Brigade (NFPA 600), the Commission and the public can be assured that dedicated fire fighters with proper training and equipment will be readily available to address any incident at the terminal.

LA2-5 Lastly, with respect to protection of Cultural Resources in the event of an incident, the DEIS states that "NorthernStar indicates that it would produce a Cultural Resources Management Plan that would outline procedures for coordination with first responders in order to protect historic properties." DEIS, p. 4-359. This commitment is not reflected in any of the proposed conditions prepared by FERC Staff. See Section 5.2. Therefore, Condition no. 36 (requiring such Cultural Resources Management Plan) must be modified to include a requirement to coordinate, and reach agreement, with first responders on the method and means to protect historic properties which are located within the Zones of Concern, especially historic buildings along the waterway which are most likely to be adversely impacted.

Conclusion

As described herein and in its prior correspondence (incorporated by reference), Warrenton requires a commitment to fund necessary capital and on-going expenditures related to police and fire protection before it can agree to any proposed ERP. NSNG should be required to document such commitments, in a form agreeable to Warrenton, before any final Order is issued from the Commission. The proposed mitigation conditions, which delay finalizing such monetary commitments until after the Certificate issues, are inadequate and contrary to statutory requirements enacted as part of the Energy Policy Act of 2005. Additionally, based on the recognized need, NSNG should be required to implement and maintain an Industrial Fire Brigade meeting all requirements described in NFPA 600, and as approved by the City of Warrenton. Lastly, the required Cultural Resources Management Plan must contain provisions addressing the risk to historic properties located within the Zones of Concern and include agreements with local first responders documenting the method and means for protecting these properties and sites.

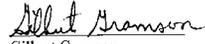
Local Agencies

LA2-5 We agree that the Cultural Resources Management Plan that NorthernStar committed to protect historic properties from the actions of first responders in the event of an unexpected accident should be part of the FERC's requirements to complete compliance with the NHPA. Therefore, we have added to our recommendation in section 4.9.4 the requirement that NorthernStar must provide a Cultural Resources Management Plan, for review and approval by the SHPOs and the FERC, prior to construction.

Local Agencies

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Respectfully submitted,



Gilbert Gramson
Mayor
City of Warrenton
P.O. Box 250
Warrenton, OR 97146
Telephone: 503-861-2233

December 7, 2007

CERTIFICATE OF SERVICE AND MAILING

I hereby certify that I have this day served the foregoing document on each person designated on the official service list compiled by the Secretary in this proceeding on December 7, 2007, by first class mail, postage prepaid.



Preston Polasek
City Manager

Attest:


Linda Engbretson, City Recorder



ORIGINAL Board of Commissioners

County Administration Building
207 Fourth Avenue North
Kelso, WA 98626
TEL (360) 577-3020
FAX (360) 423-9987
www.co.cowlitz.wa.us

COMMISSIONERS

- Kathleen A. Johnson
District 1
- George Raiter
District 2
- Axel Swanson
District 3

December 11, 2007

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

**ADMINISTRATIVE
COORDINATOR**

- Stephanie Dunn

Re: Docket CP06-365-000 and CP06-366-000 et al.
Bradwood Landing LNG Import Terminal Draft Environmental Impact Statement

Dear Ms. Bose:

Cowlitz County is the SEPA agency for the State of Washington. It is our responsibility to ensure that the environmental document adequately addresses local and state issues. To that end the County has reviewed the Draft Environmental Impact Statement (Draft EIS) and compiled comments from the public and local and state agencies. As members of the Board of Cowlitz County Commissioners, we respectfully submit this letter and the enclosed attachments as the County's official comments on the Draft EIS.

Enclosed with this letter are the following documents:

- Cowlitz County official comments on the Bradwood Landing Project Draft EIS
- Public Comments
- Agency Comments
- County Meeting Notes

Overall, we found the Draft EIS helpful in its description of the proposed terminal and operations, and we appreciate the difficulty of completing a thorough environmental analysis for such a large and complex project. Our comments identify our primary areas of concern and make requests for revision to the Draft EIS or for additional analysis.

Sincerely,
**Board of County Commissioners
of Cowlitz County, Washington**

Kathleen A. Johnson
Kathleen A. Johnson, Chair

George Raiter
George Raiter, Commissioner

Axel Swanson
Axel Swanson, Commissioner

cc: Mike Wojtowicz, Building and Planning Director
Commissioners' Record

2007 DEC 18 P 1:09
COWLITZ COUNTY
ADMINISTRATIVE
SERVICES DIVISION

Local Agencies

K-540

Local Agencies

Cowlitz County Official Comments: Bradwood Landing Project Draft EIS NEPA/SEPA Review

Introduction

This NEPA/SEPA review looked at the Bradwood Landing Draft EIS, Resource Reports for the environmental disciplines for both the Terminal and Pipeline portions of the project, and additional supporting materials found as referenced in the Bradwood Landing materials or referred to the County through public comment. The comments are organized by Draft EIS chapter and section.

These comments represent the official comments of the Cowlitz County Board of Commissioners, the designated State Environmental Policy Act lead agency for the Bradwood Landing Project. Attached with these comments is the full record of comments received by the County during the Draft EIS comment period. The record is organized by public comments, agency comments, and county meeting notes.

Chapter 1 Introduction

- LA3-1 1) **Comment:** (Page 1-2) The description of the proposed LNG import terminal does not mention or describe the development of the foundation for a third LNG storage tank. Because the development of a third storage tank foundation would affect habitat resources at the site, it should be identified as part of import terminal development.
Request: The FERC should clarify that a third storage tank foundation will be developed under the proposed LNG import terminal description
- LA3-2 2) **Comment:** (Page 1-3) Cowlitz County is concerned that the purpose statement and at least one of the stated objectives for the project may be considered too narrow under NEPA. Including "through importation of LNG" in the purpose statement is rather narrow and rules out other sources of new natural gas to the Pacific Northwest. Additionally, the statement "delivering natural gas to the Wauna Mill, Oregon and the PGE Beaver Power Plant at Port Westward, Oregon" and then using this statement as a project objective to rule out alternative sites and pipeline routes may be seen as too narrow for NEPA standards.
Request: The FERC may want to consider a more broad purpose statement to meet the intent of NEPA.
- LA3-3 3) **Comment:** (Page 1-8) ODEQ will not review the Bradwood Landing NPDES permit application until Clatsop County has issued a Land Use Compatibility Statement.
Request: The review of the NPDES permit application should be made available for review and comment prior to issuance of the Final EIS.
- LA3-4 4) **Comment:** (Page 1-24 and 1-25) The Draft EIS should incorporate all substantial comments submitted during the scoping process. However, the comments included in Chapter 1 do not include comments made about unsuitable soils and geologic hazards or comments regarding economic impacts to landowners along the pipeline.
Request: The FERC should include all substantial concerns and comments raised during the scoping process.

- LA3-1 Soil corrections and vibroflotation would be conducted in the entire LNG storage tank area (including the area of the possible third tank); however structural foundations for the third tank would not be constructed.
- LA3-2 Although the purpose statement included the phrase "through importation of LNG" we evaluated system alternatives that included new pipelines (see section 3.1.2.2). Regionally, we considered locations in Puget Sound, Grays Harbor, and Jordan Cove and did not exclude them because they could not supply natural gas to specific end users that the Bradwood Landing Project proposes to serve. However, when we considered the locations on the Columbia River, we did a more detailed comparative analysis and assumed the same delivery points along the sendout pipeline for all of the proposed alternatives for consistency.
- LA3-3 We have revised the EIS to acknowledge that Clatsop County made its land use decision on March 20, 2008. See responses to comments PM6-94, SA1-179, and SA4-3.
- LA3-4 The EIS addresses all general issues raised during scoping. See our response to comment PM3-24.

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Chapter 2 Description of Proposed Action

- LA3-5 1) **Comment:** (Pages 2-11 and 4-428) Chapter 2 describes the waterway conditions at the mouth of the Columbia River, for example the potential for a 35-foot standing wave at the bar and the need for large ships to wait for good conditions before leaving or entering the river channel. Page 4-428 explains that there are two anchorages on either side of the channel at Astoria, but that the LNG ships would not use the anchorages. Cowlitz County poses this question because if the location of holding for LNG ships is closer to Washington there may potential impacts to the State of Washington.
Request: The FERC should disclose the alternative locations for holding LNG ships while waiting for safe passage conditions to allow for consideration and review of potential impacts.
- LA3-6 2) **Comment:** (Pages 2-27 and 4-9) The Draft EIS indicates gas conveyed by the pipeline would not be odorized. The pipeline alignment in Washington would pass through an area of numerous documented mass-wasting hazards.
Request: The Final EIS should include a more thorough risk analysis to address leak detection and pipeline safety given the risk to pipe integrity posed by the geologic setting coupled with the pipeline transport of non-odorized gas.
- LA3-7 3) **Comment:** (Page 2-28) This section briefly describes the Palomar Gas Transmission pipeline project (Palomar). It describes that although NorthernStar has indicated it is seeking capacity on the Palomar pipeline, the construction of the Palomar pipeline is entirely independent of the Bradwood Landing project. As such, the FERC indicates that all analysis of impacts and alternatives for the Palomar pipeline will be conducted separately. This section also indicates that a section of the pipeline connecting to Bradwood Landing would not be constructed if Bradwood were not constructed. Thus, in our analysis, for at least that section of the pipeline, any impacts from the Palomar pipeline are, in fact, dependent on the Bradwood Landing LNG import terminal project.
Request: The FERC should evaluate and disclose potential impacts of that section of the Palomar pipeline that is dependent on the Bradwood Landing project. Because these impacts would occur on lands not presently impacted by the project currently under review in this Draft EIS, property owner notification, additional public comment hearings, and additional comment period for an updated Draft EIS would be appropriate.
- LA3-8 4) **Comment:** (Page 2-28) The potential connection of the Bradwood Landing LNG facility to the Palomar pipeline has raised many questions about the future use of gas imported to Bradwood Landing. Many Cowlitz County residents have questioned whether the Draft EIS accurately represents the intent of NorthernStar with respect to the ultimate market destination of imported LNG. The indication in this section that natural gas could be sent through the Palomar pipeline makes Cowlitz County residents question whether the proposed pipeline through Cowlitz County is even necessary, and if the demand for natural gas presented in the purpose and need section of the Draft EIS accurately represents the intended markets.
Request: The FERC should closely evaluate the relationship between the Bradwood Landing LNG facility, its proposed pipeline, and the proposed Palomar pipeline. To the extent possible, future plans for capacity on the Palomar pipeline and the proposed Bradwood Landing pipeline for LNG imported through Bradwood Landing should be disclosed.
- LA3-9 5) **Comment:** (Page 2-41) Site preparation may include blasting along the southern boundary of the site and at the existing rock quarry. The Draft EIS states that all applicable federal, state, and local regulations will be adhered to and NorthernStar would employ mitigation measures, as necessary.

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- LA3-5 There are no locations planned for holding LNG carriers. If the Columbia River Bar is closed, incoming LNG carriers would stay in the ocean, while outgoing carriers would remain at the LNG terminal. No anchorages would be allowed for LNG carriers along the waterway.
- LA3-6 Section 4.1.4.3 describes the mitigation measures proposed by NorthernStar to address potential geological hazards. The pipeline would be operated under the DOT's pipeline safety standards contained in CFR 49 Part 192, including leakage survey requirements in 192.706. See also our responses to comments PM5-81 and LA7-25.
- LA3-7 Although the segment that would connect to the Bradwood Landing LNG terminal would not be built if the Bradwood Landing Project is not authorized, taken as whole, the Palomar pipeline is not dependent on the Bradwood Landing Project. The environmental impacts of the Palomar project are being reviewed under a separate EIS process, including property owner notification and the opportunity for public review and comment.
- LA3-8 The Bradwood Landing sendout pipeline would terminate at an interconnection with the existing Williams Northwest pipeline system near Kelso, Washington. The Palomar pipeline could be an alternative destination for natural gas from the Bradwood Landing LNG terminal if it is certificated and constructed, but the Bradwood Landing Project would not be dependent on it.
- LA3-9 NorthernStar would develop a Blasting Management Plan which would contain measures for noise mitigation.

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LA3-9 cont'd *Request: Prior to completion of the Final EIS and to comply with SEPA, NorthernStar should coordinate with nearby residents at Puget Island regarding potential noise impacts during blasting and should develop a blasting management plan as part of the mitigation for this impact.*

LA3-10 6) **Comment:** (Page 2-56 through 2-58) The FERC requires that NorthernStar hire an independent third-party contractor for compliance monitoring throughout construction.
Request: The FERC should include stipulations that the third-party contractor be under contract to the FERC, not to NorthernStar to avoid conflict of interest concerns.

LA3-11 7) **Comment:** (Pages 2-63 and 3-41) Section 2.9 - Future Plans and Abandonment states "...provisions have been made in the layout of the site to allow for a possible future expansion by adding a third LNG storage tank and associated equipment." Section 3.1.6.2 (page 3-41) states that "...designing a project to allow for future expansion is a typical model for energy projects..." Both sections may be interpreted to mean that a specific terminal area for a third LNG tank may be set aside for future expansion. The Draft EIS does not explicitly state that construction of the foundation and concrete pad is necessary as part of future planning or provisions.
Request: The FERC should clarify in the Final EIS that construction of the foundation and containment berm for a possible third LNG storage tank will be undertaken during terminal development, and that the foundation and relevant section of the containment berm are provisions for future expansion.

Chapter 3 Alternatives

LA3-12 1) **Comment:** Overall, the terminal site alternatives analysis as provided in the Chapter 3 of the Draft EIS and in the Bradwood Landing Resource Report 10 fail to meet the standards for alternatives analysis found in Section 10.4 of the FERC's *Guidance Manual for Environmental Report Preparation*, August 2002. Section 10.4 requires that the environmental document "Identify and discuss the decision criteria and weighting used at each decision point and clearly state the basis for each decision." This statement is followed by a list of factors that should be discussed for each alternative site. Of the 17 factors, it appears the Bradwood Landing terminal site alternatives analysis did not specifically evaluate seven of these factors as follows:

- a) Visual impact;
- b) Amount of prime farmland soils;
- c) Presence of HRHP-eligible sites;
- d) Number of noise-sensitive areas (NSAs);
- e) Location of nearby NSAs;
- f) Air quality considerations; and
- g) Noise considerations;

Although the environmental documents state that the alternatives analysis consisted of a three year long evaluation process, there is very little supporting information regarding the alternative terminal sites and no evidence of a weighted criteria system or consistent application of the criteria to each site. Cowlitz County reviewed the alternative locations for the terminal because of the impacts to residents of the State of Washington on Puget Island and because the location of the pipeline is determined by the location of the terminal.

Request: The FERC and NorthernStar should provide documentation of the detailed criteria evaluation for each of the proposed alternative terminal locations and demonstrate how each criterion was equally applied to each alternative site.

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LA3-10 The FERC third-party contracting guidelines establish a separation of the contractor's technical interactions with the FERC staff from the invoicing process, whereby the project sponsor is only involved in paying for the contractor's time, materials, and related expenses. This is so that the applicant has the burden of covering the costs for the review of its proposal, rather than passing on those expenses to U.S. tax payers. This arrangement is similar to what other federal agencies, such as the BLM and USFS, do under their cost-reimbursable contracts with applicants. The third-party contractor is under the direction of the FERC staff, and NorthernStar is prohibited from viewing any work products. There is no conflict of interest. See response to comment PM3-65.

LA3-11 See our response to comment LA3-1.

LA3-12 We discuss our criteria for evaluating alternatives at the beginning of section 3.1 and in section 3.1.5.3. We provided information about impacts on specific resources where we have data for alternative LNG terminal sites. We did evaluate visual impacts for certain alternatives. For example, the discussion of the Oregon LNG terminal, in section 3.1.3.4, indicated that it may have greater visual impacts than the Bradwood Landing location because it would be closer to population centers in Warrenton and Astoria. We mentioned that the sendout pipeline for the Oregon LNG Project could potentially impact nine archaeological sites, while 88 archaeological sites were identified along the sendout pipeline for the Jordan Cove LNG Project. NSAs and noise impacts were considered indirectly by an assessment of the closest residence and the population density in adjacent areas. Air quality issues are equivalent, as all of the LNG terminal alternative locations are within areas that are in attainment for all NAAQS criteria pollutants.

K-544

- LA3-13 2) **Comment:** (Page 3-6) Reference to the estimated 1,800 waste sites and radioactive contamination at Hanford Nuclear Site is not explicitly linked to power generation at the Columbia Generating Station. Unless the 1,800 waste sites are a byproduct of power generation they should not be included in the analysis of nuclear energy as an alternative.
- Request:** The FERC should clarify or qualify in the Final EIS the relation and relevance of these waste sites and/or nuclear contamination to nuclear power generation at the Hanford Nuclear Site – Columbia Generating Station.
- LA3-14 3) **Comment:** (Page 3-29) The argument for the dismissal of the Port Westward alternative site is insufficient. This alternative site appears to have important advantages over the Bradwood Landing site, specifically the potential for reuse of waste heat and cool water.
- Request:** To improve the conclusion, the results of additional research into the lease agreement for site feasibility and more clearly quantified potential, incremental negative impacts of the further river travel should be provided.
- LA3-15 4) **Comment:** (Page 3-31 through 3-34) The Draft EIS states that the analysis of feasibility for off-shore LNG import facilities was conducted at one location southwest of Astoria. This location was chosen to provide an efficient pipeline connection to on-shore facilities. We note that for on-shore LNG import terminals the alternative site analysis included sites outside of the immediate proposed project area, as long as a site could meet the purpose of bringing LNG to the Northwest market. By limiting the evaluation of off-shore alternatives to just one location, the alternatives analysis does not evaluate a reasonable breadth of locations.
- Request:** (Page 3-31) The FERC should identify other potentially feasible off-shore locations that could serve the purpose of bringing LNG to the Northwest and should conduct the same analysis for feasibility, and the results should be presented in the Final EIS.
- LA3-16 5) **Comment:** The analysis performed to compare Oregon off-shore conditions to those of the Gulf of Mexico and the Atlantic Ocean near Massachusetts is limited and may not provide a clear picture of the conditions other LNG facilities have been constructed in.
- Request:** The FERC should also include a comparison to the conditions in Nova Scotia where the Keltic Petrochemicals LNG and Bear Head LNG facilities have been proposed with off-shore components.
- LA3-17 6) **Comment:** (Page 3-39) The argument for the dismissal of the Cherry Point alternative site is insufficient. Reasoning for dismissing this site is based on potential restrictions on development due to an August 2000 Withdrawal Order by the Washington Commissioner of Public Lands that created the Cherry Point State Aquatic Reserve (CPSAR). As stated in the Draft EIS, the specific management plan will not be finalized until late 2007 or early 2008. To date negotiations are still underway and include all the stakeholders in the area including industrial developments (www.dnr.wa.gov/hdocs/aqu/reserves). We feel that the existing industrial character of this site, the deep water access, and short distance to the Williams Pipeline make the Cherry Point site a strong alternative to the Bradwood Landing site for bringing LNG to the northwest market.
- Request:** Further investigation of the potential for development of an LNG import terminal should be included before finalization of the Bradwood Landing EIS. For more information, the DNR website references Kyle Murphy (360-902-1073; kyle.murphy@dnr.wa.gov).
- LA3-18 7) **Comment:** (Page 3-48) The reasons given for dismissing the Railroad Route Alternative are insufficient. The Draft EIS states that this alternative fails to meet the project objective of delivery to

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- LA3-13 We have revised the text discussing nuclear power as a renewable energy resource alternative in section 3.1.1.3.
- LA3-14 We disagree that our analysis of the Port Westward alternative LNG terminal location is insufficient. We do not believe that the potential to exchange waste heat and cooling water from the Beaver power plant at Port Westward is a critically important advantage. The Bradwood Landing Project would have limited impacts on air quality, as explained in section 4.10. As our discussion in section 3.1.3.4 indicates, the disadvantages of an LNG terminal alternative at Port Westward includes lack of a project sponsor able to prepare a FERC application, unfavorable development conditions for the lease of waterfront property, and longer LNG carrier transit. No additional research is necessary to support those conclusions.
- LA3-15 The data on rough seas conditions, derived from the ABSC report, apply to the entire Pacific Northwest coast line. (See our response to comments PM2-24 and FA2-4.) We picked a hypothetical location off the Oregon Coast, in close proximity to the proposed Bradwood Landing Project, in order to meet the project objectives. The conclusions presented in the EIS are based on an evaluation of technologies that are technically and economically feasible given weather conditions off the Oregon coast. These technologies have certain limitations under conditions that would be present along the entire Pacific Northwest coastline. See also our response to IND115-2 [Bennett and Patricia Garner].)
- LA3-16 We have revised section 3.1.4.1 to better explain how rough sea conditions off the Oregon coast compares to conditions off the Northeast and Gulf coasts. Keltic Petrochemicals of Halifax is proposing a petrochemical plant and a cogeneration plant with an associated LNG terminal, storage, and regasification facility (see http://www.kelticpetrochemicals.ca/projects_Ing.html). The Bear Head LNG project has since been discontinued but would have been located on a peninsula on Cape Breton Island, Nova Scotia, Canada (LCG Consulting Energy Online, accessed March 2, 2008 <http://energyonline.com/Industry/News.aspx?NewsID=6951>). With LNG storage and vaporization facilities located onshore, both of these proposed facilities are not conceptually different than the one proposed by Oregon LNG. Regardless, the sea conditions located at these sites are not comparable to the conditions off the coast of Oregon.
- LA3-17 Because of the uncertainty associated with the potential restrictions imposed by the CPSAR, a potential LNG facility developer could not have considered the Cherry Point alternative site under the same schedule as the proposed site. As further discussed in section 3.1.5.3, the Cherry Point location was also eliminated due to the interim restrictions on the development of any new in-water structures within the Cherry Point State Aquatic Reserve. We do not believe this alternative warrants further consideration at this time.
- LA3-18 We believe our conclusions in section 3.1.8.1 sufficiently describe the benefits of the proposed route over the Railroad Route Alternative. The proposed route beyond the PGE Beaver Power Plant at Port Westward would be collocated with the existing KB Pipeline for a significant portion of its length.

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LA3-18 cont'd the PGE Beaver Power Plant at Port Westward without a pipeline lateral that would significantly extend the length of the pipeline. Considering the objective of delivery to the power plant suggests that another alternative, a hybrid of the proposed pipeline route and the Railroad Route, could have been considered. The route could have followed the proposed route to the power plant and then transitioned to follow the Railroad Route. It appears, without any independent research or analysis, there is potential for a route with fewer environmental impacts (as described by the Railroad Route) that could be developed by such a combination. Additionally, based on Comment 2 in our comments for Chapter 1, this alternative was eliminated for not meeting a project objective that may be seen as too narrow under NEPA.

Request: Before finalization of the Bradwood Landing EIS, this additional alternative should be analyzed.

LA3-19 8) *Comment:* (Page 3-49) The Major Pipeline Route Alternatives Conclusion appears to falsely state that the proposed pipeline alternative is the shortest alternative route, when the description of the Railroad Route of page 3-48 states that the Railroad Alternative is slightly shorter than the proposed route, and Table 3.1.8-1 on page 3-50 shows the Proposed Route length as 36.3 miles and the Railroad route length as 35.8 miles.

Request: This statement should be evaluated and corrected if needed.

LA3-20 9) *Comment:* (Page 3-49) The Major Pipeline Route Alternatives Conclusion statement further claims that the proposed route eliminates constructibility issues. There is no specific evidence provided to measure constructibility issues. Many would argue that the proposed route poses numerous constructibility issues due to challenges of drilling below two major rivers and laying pipeline for approximately 17 miles in terrain with approximately 31 documented landslide features, stream drainages, and other geologic challenges.

Request: Before finalization of the Bradwood Landing EIS, further analysis of constructibility between pipeline route alternatives should be provided.

LA3-21 10) *Comment:* (Page 3-51) Table 3.1.8-2 provides reasons for minor route variations in the proposed pipeline route. While this information is helpful, it is difficult to evaluate the accuracy of the statements because the level of detail provided on the maps in Appendix B is not sufficient to verify the conclusions. Additionally, on the maps, it is unclear whether the red solid line shows the route as indicated with the "selected" notation in Table 3.1.8-2 where the alternative route was selected, or if the dashed line shows alternatives considered in the case where it was selected or where it was not.

Request: Where a minor route variation was determined based on a physical element that can be mapped, more detailed mapping should be provided. Additionally, clarification should be provided for symbolization of the selected route.

Chapter 4 Environmental Analysis

4.1 Geology

LA3-22 1) *Comment:* (Pages 4-20 and 4-21) Section 4.1.4.3 states that horizontal directional drilling (HDD) is proposed for routing the pipeline under landslide features and up to 17 waterbodies. A URS geotechnical investigation (URS 2006b) states for each of the proposed HDD sites, that "the risk of encountering varying geologic conditions is low." Based on a review by Foundation Engineers contracted with Cowlitz County, the Columbia River Basalt underlying many of the sites vary from soil to very hard rock with zones of very close jointing. Therefore, in our opinion, the HDD will likely encounter widely varying conditions. The proposed extensive use of HDD technology appears

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LA3-19 The major pipeline route conclusion has been revised in the final EIS.

LA3-20 The constructability issue referred to is specifically the requirement for blasting in proximity to the railroad bed. This has been clarified in the conclusions for the major pipeline routes in section 3.1.8.1.

LA3-21 The legend on each figure indicates that the solid line is the proposed route, which by definition, would be the selected route segment. The EIS is by necessity a summary document and we believe the level of detail in the pipeline route maps, along with the narrative in the text, is sufficient to depict the minor route variations.

LA3-22 See our response to comment SA3-5.

LA3-22
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to 'push' the limits of the existing technology. In addition, there are no contingency plans for alternate stream crossing methods such as open trenching. The lack of surety regarding whether HDD technology can be used at all the locations it is proposed may present problems with compliance with the Biological Opinion and other agency approvals.

Request: The Final EIS should provide a more thorough discussion of design considerations and the feasibility of using HDD. This discussion should include contingencies in the event that attempts to use HDD fail to a significant degree and should demonstrate approval from regulatory agencies for these contingency methods.

LA3-23

2) *Comment:* (Pages 4-20 and 4-84) The Draft EIS recommends preparation of a Final Pipeline Design Geotechnical Report prior to construction but after project approval. The more detailed geotechnical report is to refine the subsurface conditions beneath difficult geometries and/or sensitive watersheds. The potential scope of engineering challenges seems to merit a more detailed analysis of the suitability of the proposed pipeline alignment prior to project approval.

Request: The Final EIS should provide a more detailed assessment of engineering challenges to pipeline installation and integrity posed by local geology that can be compared with other pipeline routes in the alternatives analysis.

4.2 Soils and Sediments

No specific comments.

4.3 Water Resources

LA3-24

1) *Comment:* (4-84) The Draft EIS states that up to 17 waterbodies will be traversed using HDD. A URS geotechnical investigation (URS 2006b) that examines thirteen potential HDD sites states that the risk of "frac-out", loss of drilling fluid to the surface is reduced by the subsurface basalt bedrock. In our experience, Columbia River Basalt often includes open joints and zones of high permeability. Therefore, the risk of drilling fluid loss is relatively high.

Request: The Final EIS should include an assessment of cumulative effects from potential multiple frac-outs. The Final EIS should also include a "failure threshold" analysis whereby the use of HDD would be re-evaluated. In addition, because some regulatory approvals (U.S. Fish and Wildlife Biological Opinion and U.S. Army Corps of Engineers Section 404 Permit) are dependant on methods presented in applications based on HDD technology, contingency plans and demonstration of approval from all required regulatory authorities must be provided prior to the Final EIS.

LA3-25

2) *Comment:* (Page 4-56) The HDD alignment for the Columbia River crossing falls within the area of influence of a Port of St. Helens, Oregon municipal well that was not discussed in the Draft EIS.

Request: The Final EIS should describe and discuss effects of pipeline construction on the Port of St. Helens municipal well.

LA3-26

3) *Comment:* (Pages 4-66 and 4-70) Model predictions taken from the WEST hydrodynamic and sediment transport report prepared for NorthernStar state that dredge-related total suspended solids (TSS) would diminish to 0.1 mg/L before reaching Tenasillahe Island. Teasillahe Island is located approximately 1 kilometer downstream of the edge of the proposed dredging zone. Hunt Creek, which is recognized essential salmonid habitat, is located immediately adjacent to the proposed dredge site.

Request: Clarify in the Final EIS whether TSS concentrations on the order of 0.1 mg/L would be temporary and minor in the vicinity of Hunt Creek during dredge activities, and what effects on natural resources may be anticipated from anticipated TSS concentrations.

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LA3-23

The detailed geotechnical analysis for the pipeline requires property access that is currently not available. It is not feasible to include this level of analysis in the final EIS.

LA3-24

The trajectory of the Columbia River HDD would be designed to minimize the potential for frac-outs. The FERC's approval of the project is contingent on the COE's approval of the section 404 permit. In addition, the FERC would not allow construction to proceed until after we have concluded formal consultation with the FWS and NMFS.

LA3-25

Based on the location of the Port of St. Helens municipal water well relative to the trajectory of the Columbia River HDD borehole, we do not believe that the well would be affected by pipeline construction.

LA3-26

Based on figure 44 within the Hydrodynamic and Sediment Transport Assessment conducted for the Bradwood Landing Project by WEST (2006), TSS concentrations would diminish to 0.1 mg/L before reaching Hunt Creek. Sections 4.2.2.2 and 4.3.2.3 have been revised to address this comment. Potential impacts on aquatic resources due to increased suspended sediment and turbidity levels from dredging activities are described in section 4.5.2.1.

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- LA3-27 4) **Comment:** (Page 4-70) The Draft EIS states that background levels of turbidity measured in Nephelometric Turbidity Units (NTUs) are on the order of 3 to 10 NTUs in the Columbia River, and that "...turbidity plumes from dredging for the Bradwood Landing Project would return to within 1 NTU of background levels within 1 minute after suspension." This represents a 10% to 33% increase in NTUs over background over a period of 48-72 days, 24 hours per day for the initial dredging to be completed.
- Request:** *The Final EIS should more explicitly characterize whether increases in NTUs reported in the Draft EIS would have significant impacts to natural resources, and should more explicitly characterize the extent and duration of the plume anticipated from dredging activities.*
- LA3-28 5) **Comment:** (Pages 2-42 and 4-50) The Draft EIS describes dredging a 58-acre basin to accommodate LNG ship movement and berthing. The description of channel habitat affected by dredging does not adequately quantify benthic species and their ecological functions.
- Request:** *The Final EIS should more thoroughly characterize habitat and species usage in the area proposed for dredging, and should discuss how proposed mitigation replaces functions and habitat lost via dredging. The Final EIS should also provide more detail as to why dredge of the proposed scale was determined to be "minor and temporary."*
- 4.4 Wetlands and Terrestrial Vegetation**
- LA3-29 1) **Comment:** (Pages 4-96) The Draft EIS requests that NorthernStar should file the final wetland mitigation plan with the FERC prior to construction. Wetland and terrestrial mitigation is a key component in the evaluation of environmental impacts and, therefore should be complete and available for review and comment prior to application approval.
- Request:** *The Final EIS should include the final mitigation plan in order to allow adequate evaluation of proposed mitigation.*
- LA3-30 2) **Comment:** (Page 4-103) The Draft EIS describes recovery of vegetation affected by pipeline construction taking "several years" in the case of shrub-scrub wetlands, and presumably longer for affected forested wetlands. However, the Draft EIS suggests a "minimum of 3 years" of post-construction monitoring. It is typical for wetland mitigation monitoring to extend longer than three years. We recommend a minimum of five years of mitigation monitoring, staggered over a ten-year period.
- Request:** *The Final EIS should include a more adequate post-construction mitigation monitoring program.*
- LA3-31 3) **Comment:** (Page 4-105) The Draft EIS notes that ten temporary construction areas located in wetlands or within 50 feet of wetlands were not approved by the FERC. The Draft EIS recommends relocating these construction areas or providing better site-specific rationale for their use "prior to pipeline construction."
- Request:** *The Final EIS should include descriptions for all temporary construction areas, and any temporary construction areas that affect wetlands or other critical habitat areas should include site-specific rationale.*
- LA3-32 4) **Comment:** Proposed wetland mitigation for the Washington section of pipeline includes enhancement of existing wetlands via weed removal and control, and native plantings. In our experience, existing wetland areas that include invasive, weedy species are difficult to enhance without changing base conditions, such as modifying land management practices, manipulating

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- LA3-27 We believe the potential direct and indirect impacts on aquatic resources as a result of dredging activities are adequately described in section 4.5.2.1. Additional details on the extent and duration of the turbidity plume associated with dredging activities at the LNG terminal site are included in the Hydrodynamic and Sediment Transport Assessment conducted for the Bradwood Landing Project by WEST (2006).
- LA3-28 We believe that the discussion of habitat and species usage in the dredged footprint is adequately described in section 4.5.2.1. The adequacy of NorthernStar's Compensatory Mitigation Plan is discussed in the response to comment FA2-10.
- We were unable to find any reference within the pages described in the comment (pages 2-42 and 4-50) to impacts from dredging being classified as minor and temporary. We agree that dredging of the ship berth and maneuvering area would result in permanent habitat modification (see table 2.3-1).
- LA3-29 See our response to comment FA2-16.
- LA3-30 We have included a recommendation in section 4.3.2.4 that NorthernStar consult with the COE, NMFS, FWS, and other appropriate agencies to finalize its Waterbody and Wetland Construction and Mitigation Procedures Plan. The plan would include procedures for monitoring the success of revegetation and weed control efforts. The Waterbody and Wetland Construction and Mitigation Procedures Plan would be filed, along with agency comments, with the Secretary prior to construction.
- LA3-31 Temporary construction areas are depicted in the Alignment Sheets for the Bradwood Landing Project. Waterbody and Wetland Construction and Mitigation Procedures Plan. Directions for accessing NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan via the eLibrary can be found in the response to comment FA2-17. In addition, table 4.4.1-7 describes all additional temporary workspaces that would be located within 50 feet of a wetland. Because the EIS is a summary document, we believe that the inclusion of site-specific rationale for the approval or denial of each workspace within 50 feet of a wetland is not appropriate.
- LA3-32 See our response to comment SA1-124.

LA3-32 hydrologic regimes, or other such measures. Proposed mitigation measures do not adequately address existing conditions.

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Request: The final wetland mitigation plan should include a description and analysis of the base conditions that support weedy species in the proposed enhancement area, and a description of measures undertaken to modify those base conditions in order to decrease the chance of long term mitigation failure.

4.5 Wildlife and Aquatic Resources

LA3-33 1) *Comment:* (Page 4-139) The Draft EIS requests that NorthernStar prepare a bubble curtain contingency plan prior to beginning pile driving activities.

Request: The Bubble Curtain Contingency Plan should be completed and submitted for evaluation prior to release of the Final EIS.

LA3-34 2) *Comment:* (Page 4-147) The Draft EIS requests that NorthernStar submit a facility Lighting Plan "prior to operation of the LNG terminal."

Request: The Lighting Plan should be completed prior to the Final EIS in order to adequately assess effects of facility operation on sensitive species and to comply with SEPA.

LA3-35 3) *Comment:* (Page 4-150) The Draft EIS describes the majority of habitat mitigation occurring at Svensen Island. Svensen Island is located approximately 14 miles downstream of the impact area. The distance between impact and mitigation site seems significant given that significant numbers of species using the Bradwood site are migratory. The Draft EIS does not appear to adequately consider how loss of habitat at Bradwood would affect travel distance for fish species that would otherwise use Bradwood.

Request: The Final EIS analysis should include discussion of the importance and function of Bradwood Landing habitat in the context of its distance from similar habitat areas, and should analyze the effects of habitat loss on species movement.

LA3-36 4) *Comment:* (Page 4-145) The Draft ESA states "NorthernStar would offer contract incentives to the LNG suppliers to retrofit LNG ships to connect with the wharf filtered water supply so that all water withdrawn from the Columbia River would be done via screened intakes constructed by NorthernStar at the LNG terminal." The FERC recommends that NorthernStar prepare a plan "prior to beginning initial site preparation at the LNG terminal" outlining how to ensure that incoming ships are retrofitted to use the screened water intake. The proposed use of "contract incentives" is vague and inadequately described in the Draft EIS.

Request: The Final EIS should state that all ships wishing to unload at Bradwood Landing must be retrofitted to use the proposed facility's screened water.

LA3-37 5) *Comment:* (Page 4-150) Dike breach activities are on the north side of Svensen Island, meaning that access to the island interior would be from the main Columbia River channel only. The south side of the island is in close proximity to streams on the Oregon mainland that outfall to the slough area between the island and mainland.

Request: The Final EIS should provide more detail for the decision to locate dike breaches on the north side of the island, provide a discussion of the function and value of contributing streams from the Oregon mainland, and should assess and discuss the feasibility and desirability of dike breaches on the south side of Svensen Island

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LA3-33 As described in section 4.5.2.1, NorthernStar filed its Bubble Curtain Contingency Plan with the FERC on December 21, 2007. This document is available for viewing by the public on the FERC's internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e., CP06-365), and putting in the proper date range.

LA3-34 As stated in section 4.5.2.1, NorthernStar submitted its Lighting Plan for the Bradwood Landing Terminal as part of its response to the NMFS's May 11, 2007 request for additional information to the FERC on July 6, 2007. This document is available for viewing by the public on the FERC's internet web page at www.ferc.gov, through the eLibrary link, selecting "General Search," entering the docket number minus the last three digits (i.e., CP06-365), and putting in the proper date range.

We agree that additional information on the potential impacts of terminal lighting and mitigation for lighting is required; therefore, we recommended in section 4.5.2.1 that NorthernStar continue to consult with the NMFS, FWS, ODFW, and other applicable agencies regarding its Lighting Plan. The final Lighting Plan, along with agency comments, should be filed with the Secretary prior to operation of the LNG terminal.

LA3-35 In addition to mitigation efforts proposed for Svensen Island, it is important to note that the Hunt Creek Mitigation Site, which is located immediately adjacent to the proposed LNG terminal site and is designated critical habitat, is included as part of NorthernStar's Compensatory Mitigation Plan. Hunt Creek is known to provide both spawning and rearing habitat for federally listed salmonids.

It is our opinion that due to the migratory nature of juvenile salmonids, the distance between the proposed LNG terminal site and the proposed mitigation site at Svensen Island would not significantly reduce the benefits of the proposed mitigation for these populations. The adequacy of NorthernStar's Compensatory Mitigation Plan is also discussed in the response to comment FA2-10. Directions for accessing NorthernStar's Compensatory Mitigation Plan via the eLibrary can be found in the response to comment PM6-11.

LA3-36 See our response to comment PM1-31.

LA3-37 See our response to comment FA2-10.

K-549

LA3-38 6) **Comment:** (Page 4-153) The Draft EIS describes several mitigation measures for impacts to aquatic resources and wetlands. Included as mitigation measures are:

- Place some excavated material along selected dike areas to facilitate growth of shrubs and trees to be planted
- Protect two existing home sites by placing fill around one and raising the eastern cross-dike

The placement of excavated material and the protection of home sites do not appear to be mitigation measures that will benefit aquatic resources or wetlands.

Request: Clarify in the Final EIS how these two measures constitute mitigation for wetland and aquatic habitat loss.

LA3-39 7) **Comment:** (Page 4-169) The Draft EIS states that most of the unstable slopes above sensitive waters would be crossed by the HDD construction method. For reasons stated above, there is concern that HDD construction methods may be difficult, if not impossible in some areas.

Request: The Final EIS should more precisely identify geologic hazards within the pipeline alignment, and should expand on the contingency analysis should HDD be found unfeasible, or should construction lead to unanticipated erosion or frequent "frac-outs." The more detailed geotechnical analysis and contingency plan should be completed prior to, and a discussion of the findings and measures should be included as part of the Final EIS.

4.6 Threatened, Endangered and Other Special Status Species

LA3-40 1) **Comment:** (Page 4-250) The Draft EIS describes potentially adverse impacts to Columbian white-tailed deer as habitat loss (59 acres temporary and permanent), noise disturbance, and potential increased vehicle collisions. Disturbance from facility lighting is not mentioned. Three database records of Columbian white-tailed deer record deer activity less than one mile distant, and place deer activity on three different sides of the proposed facility.

Mitigation for adverse effects to deer populations includes preservation of remaining habitat. The Draft EIS notes that deer remaining in the areas would acclimate to the long-term noise disturbance caused by operation of the facility. Mitigation for adverse effects on Columbian white-tailed deer is inadequate.

Request: The Final EIS should provide a more thorough analysis of effects of LNG terminal development on Columbian white-tailed deer.

LA3-41 2) **Comment:** The Washington section of pipeline passes through an area documented as historical habitat for listed Nelson's checker mallow (*Sidalcea nelsoniana*). The Draft EIS does not discuss or address potential adverse effects of pipeline construction or easement maintenance through this area.

Request: The Final EIS should address potential adverse effects to *S. nelsoniana* habitat.

4.7 Land Use, Recreation, and Visual Resources

LA3-42 1) **Comment:** (Page 4-289) Section 4.7.2.3 states that planned development was researched in Clatsop County in 2005. Although it is understood that the analysis for the Draft EIS began more than two years ago, development is dynamic, and new planned land use actions are likely left out of the Draft EIS analysis. Using January 1, 2007 as a cut off date for determining if a development meets the definition of "planned" under NEPA would likely result in additional developments either in the vicinity of the pipeline or the vicinity of the terminal.

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LA3-38 As discussed in section 2.1.5, NorthernStar is currently revising its Compensatory Mitigation Plan. Although NorthernStar proposes to protect two existing home sites on Svensen Island by placing fill around one and raising the eastern cross-dike, we agree that this would not mitigate for impacts on aquatic resources and wetlands; therefore, this statement has been removed from section 4.5.2.1. In contrast, the placement of excavated material along selected dike areas in order to facilitate the growth of shrubs and trees would indirectly provide a benefit to aquatic resources by increasing the quality of riparian vegetation.

LA3-39 See our response to comment LA7-25.

LA3-40 Section 4.6.2.2 has been revised to include additional information on the potential impacts on Columbian white-tailed deer due to construction and operation of the proposed terminal. See also our responses to comments PM3-68 and FA4-6.

LA3-41 Section 4.6.2.3 has been revised to include new survey information for the Nelson's checker-mallow.

LA3-42 We have revised section 4.7.2.3 based on comments we received on the draft EIS.

LA3-42 | *Request: Prior to completion of the Final EIS, the FERC should provide an updated list of planned land use developments and analysis of potential impacts to these developments along with proposed mitigation.*

LA3-43 | 2) *Comment: (Page 4-308) Access road locations and conditions are listed in a table. They are all listed as private roads and no names are given. This is insufficient information for reviewers considering impacts to access roads.*
Request: The location and name (if any) of all access roads should be provided on a detailed map to allow for full consideration and comment.

LA3-44 | 3) *Comment: (Page 4-310) The Draft EIS notes that a Christmas tree farm will be crossed by the pipeline construction in Cowlitz County between mile posts 31.7 and 32. The Draft EIS notes that after construction is complete, NorthernStar would repair and/or restore all contours and grade to as near original conditions as possible. Because the pipeline easement will require permanent conversion of all land within the easement from productive Christmas tree growing area to unproductive land (i.e., no trees can be grown in the easement in the future), more information on the nature and extent of the impact is required.*
Request: The Final EIS should provide:
a) The proportion of the farmed area will be permanently converted.
b) The value of the land for tree production and lost future revenues.
c) Proposed mitigation for loss of productive crop land.
In addition, the Farmland Protection Act (7 CFR 658.1 et seq.) may require a Prime Farmland Conversion Impact Evaluation for much of the timber land being converted in this project. The FERC should evaluate whether this is required and provide updated information in the Final EIS.

LA3-45 | 4) *Comment: (Page 4-313) The Draft EIS states that NorthernStar has not yet reviewed the zoning of storage and laydown areas along the pipeline with Cowlitz County staff.*
Request: The Final EIS should include analysis of land use compatibility of these areas and identify what permits will be necessary for temporary or permanent use of the areas.

LA3-46 | 5) *Comment: (Page 4-316) The Draft EIS states that no future planned residential or commercial developments in close proximity to the proposed pipeline route in Cowlitz County were identified. Cowlitz County residents William and Marjorie Castle have submitted comments to Cowlitz County that their proposed single family residence is located directly adjacent to the proposed pipeline route and drilling location. Their property is located at 212 Whitewater Road. They submitted a building permit application for the proposed single family dwelling on December 22, 2006. The permit can be reviewed under permit number 06-12-2674.*
Request: Because the County is aware of this example of a planned development directly adjacent to the pipeline and the FERC Draft EIS fails to identify it, the County questions the accuracy of the review of other areas along the pipeline, both in Washington and Oregon. The planned development analysis should be conducted again and be provided along with potential impacts and proposed mitigation in the Final EIS.

LA3-47 | 6) *Comment: The Visual Assessment included as an appendix to Resource Report 8 indicates that the presence of LNG tanker ships at the terminal pose a short duration visual impact. With the proposed frequency of ships per year and proposed duration of 24 hours per terminal visit, there will be a ship*

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LA3-43 Many of the access road do not have names and are thus listed as "unnamed." Detailed maps of the proposed pipeline route that show the locations of access roads were filed by NorthernStar as attachments to Resource Report 1 and are available from the FERC's eLibrary site.

LA3-44 As further discussed in section 4.7.3.1, compensation for impacts for losses resulting from construction, including losses of non-renewable and other resources, damages to property during construction, and restrictions on existing uses that would not be permitted on the permanent right-of-way after construction.

LA3-45 As discussed in section 4.7.3.1, NorthernStar's proposed pipe storage and contractor yard in Washington is located in a commercially zoned area.

LA3-46 Based on this comment we have revised section 4.7.2.3.

LA3-47 This comment refers to the Visual Assessment completed by NorthernStar. Our visual resources discussion in section 4.7.2.7 does not include this language.

LA3-47
cont'd

at the terminal in view of the residences on Puget Island approximately 34% of the year. This visual presence is inaccurately described as 'short duration'. This kind of visual impact should be considered moderate duration, not short. Additionally, it should not be treated as equal to the visual impact on an LNG tanker passing by any point on the river as it seems to be.

Request: The FERC should consider revising the analysis of the visual impact of the LNG Tankers while docked at the Bradwood Landing terminal.

LA3-48

7) *Comment:* There is no complete evaluation of light scatter and glare, only notation of future collaboration with planners to minimize impacts.

Request: SEPA Rules require evaluation of scatter and glare. Because the terminal will be lighted 24 hours per day and there are residents and wildlife refuge areas with direct visual connection to the terminal site, the Draft EIS should provide more information about nighttime lighting and mitigation for lighting effects.

4.8 Socioeconomics

LA3-49

1) *Comment:* (Page 4-328) The Draft EIS states that "about 1,500 recreational fishing boats go out on the Columbia River between February and October, based on per-day use data from 2004." Based on our review, this statement appears to be inaccurate and misleading in two aspects: the total number of vessels and the reported area of the measurement.

Total number of vessels

Using the "about 1,500" number and the approximately 270 days between February and October, the average number of recreational vessels per day on the river would be 5 - 6 vessels per day. Given that this number seems exceedingly low, we reviewed the *River User Impact Analysis* provided as an Appendix to Resource Report 8. We found that Table IV.1 Recreational Fishing Boats - Average Per-Day Use, 2004 in that report was used incorrectly to generate the "about 1,500" number presented in the Draft EIS. Data in Table IV.1 indicate an average number of recreation vessels using the Columbia River estuary during each month between February and October. It appears that the authors of the Draft EIS added each of the daily averages shown for each month to reach an approximate total of 1,500, and used this number to describe the total approximate usage for the full duration of time between February and October. This incorrect use of data leads to a gross underestimation of total recreational river usage reported in the Draft EIS.

Accurately approximating a total number of recreation vessels from February to October based on the daily averages in Table IV.1 cannot be accomplished. One can generate a very rough total estimate by multiplying the daily average to the number of days in each month, and then summing the total for each month, but because high weekend boating numbers may largely inflate some of the data, a total generated this way may grossly overestimate the total. However, the ODFW estimates annual fishery recreation usage at over 50,000 boats on the Columbia River, which compared to the data provided in the Draft EIS suggests that the full impacts to recreational boaters has not been fully evaluated.

Reported Area of the Measurement

LA3-50

The Draft EIS statement, "about 1,500 recreational fishing boats go out on the Columbia River between February and October, based on per-day use data from 2004" is unclear as to what portion of the Columbia River the measurement applies to. We believe that most readers of the Draft EIS would assume it applies to the Columbia River, generally downstream of the Portland Vancouver Metropolitan area. However, the *River User Impact Analysis* indicates that the data is for the Columbia River estuary. Given this clarification that the data applies to the estuary area only, the data is misrepresented in the Draft EIS and does not cover the full area of the LNG ships transit of the Columbia River.

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LA3-48

See our response to comment LA3-34.

LA3-49

Section 4.8.1.7 has been revised to correct the number of recreational fishing boats.

LA3-50

Section 4.8.1.7 has been revised. However, we still conclude that the project would not have significant impacts on recreational users of the lower Columbia River.

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LA3-50
cont'd

Request: The addition of an LNG ship traveling either up or down the river every 1.5 days presents both frequent hazards and frequent disturbance and inconvenience to many recreational rivers users that must relocate out of the exclusion area to let a ship pass. With incorrect data presented in the Draft EIS, the FERC appears to have not accurately evaluated the impacts to recreational river users. This error should be corrected and any impacts different from those presented in the Draft EIS need to be disclosed.

LA3-51

2) **Comment:** (Page 4-328 and 4-329) The FERC Draft EIS briefly discusses impacts to shipping navigation and traffic with regard to the U.S. Coast Guard's safety recommendations. The Draft EIS concludes that although there will be security zones, ships would not be allowed to overtake an LNG ship, and one-way traffic would be imposed for each LNG ship transit up the Columbia River every 1.5 days, ship traffic delays are expected to be negligible. The Draft EIS notes that there may be delays due to wait times for ships either entering or leaving the mouth of the Columbia River, but does not attempt to quantify the delays.

The *River User Impact Analysis* provided as an attachment to Resource Report 5 Socioeconomics, indicates that although there has been some volatility in shipping traffic over the last several years, the long term projection is for an increase in cargo shipping on the Columbia River. This report also states:

"With river traffic of roughly 2,000 vessels annually, a ship is going upriver (and down river) roughly once every 4.4 hours. With a 3 hour travel time, there is therefore a roughly 70% chance of meeting oncoming traffic for each of the 250 annual tanker trips (125 upriver and 125 down). The worst-case scenario is that a ship must wait the entire 3 hours that the tanker is traveling. If this scenario came to pass, the estimated annual impacts on shipping would be \$423,165. Delays of less than the entire three hours would decrease the overall cost to shipping accordingly.

A marginal increase in ship traffic could increase the wait time for ships in Astoria occasionally. If a large number of ships arrive at the mouth of the Columbia in a short time period, some may need to wait for a pilot. A similar scenario plays out just upriver of Astoria when Bar and River pilots replace one another."

This estimate of delay is likely substantially understated. Additionally, the report also notes that the full impact of the U.S. Coast Guard's recommended safety zones has not been identified and that future more in-depth analysis would be needed to discern the actual impacts to the shipping industry.

Request: The shipping industry on the Columbia River is an extremely important component of the economy of several northwest states, and the industry is very sensitive to delay. The FERC should conduct a full analysis of socioeconomic impacts due to shipping delays imposed by the addition of the LNG vessels on the Columbia River. This analysis should include modeling of ship traffic based on the best available data and vessel traffic monitoring system information, and should provide data on expected delays based on cargo type to provide analysis of which industries and economies will be most affected. The analysis should also provide a scheduling scenario of a typical trip and encounters with other shipping traffic as well as a worst case scenario for delays imposed by timing restrictions crossing the Columbia River Bar and delays imposed by the U.S. Coast Guard safety zones.

LA3-51

The River User Impact Analysis was prepared prior to the Coast Guard's review of the WSA and release of the WSR. We do not anticipate significant shipping delays would occur as a result of the project. In addition, section 4.8.1.7 has been revised to include additional discussion regarding potential for navigational conflicts LNG carrier traffic may have with other commercial ships traversing the Columbia River bar. See also our response to comment IND33-16.

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- LA3-52 3) **Comment:** The FERC implementing regulations for NEPA [18 CFR Ch. 1 Part 380.12(g)(6)¹] require that the FERC:

“Conduct a fiscal impact analysis evaluating incremental local government expenditures in relation to incremental local government revenues that would result from construction of the project. Incremental expenditures include, but are not limited to, school operating costs, road maintenance and repair, public safety, and public utility costs.” (emphasis added)

The FERC did not produce a Resource Report 5 Socioeconomics for the pipeline portion of the project stating that the project is exempt from the Socioeconomics requirements because it is not an above ground facility or a major pipeline project. The incremental local government cost of road maintenance and repair is not sufficiently addressed for the pipeline portion of the project and concerns have been raised about these costs by the local agencies.

Road Maintenance and Repair

In the Draft EIS the subject of local roads is addressed on page 4-353, second paragraph. The Draft EIS indicates that access road modifications will be limited to grading and the addition of gravel to prevent rutting. This is followed by a statement to the effect that previously existing roads used for access would be returned to original or better conditions, or as requested by the owner.

Concern about the future condition of Cowlitz County roads used to access pipeline construction sites was raised during the public open house hosted by Cowlitz County on October 11, 2007. Many of the roads providing access to construction areas are also the only roads providing access to residential properties, and are narrow roads with low average daily traffic and very little truck use. Concerns about the use of County roads can be seen as near-term and long-term. The near term concerns that were not sufficiently addressed in the Draft EIS include:

- a) Scheduling and restricted use of roads during construction causing financial burden on residents due to delays and conflicts with other scheduled road work;
- b) Damage to roadway, underlying utilities and adjacent properties by large trucks and heavy equipment frequently using County roads would be costly for the county to repair; and
- c) No specific description of standards to be followed for mitigation of damage and reconstruction of damaged areas.

The long-term concerns that were not sufficiently addressed include:

- a) Drainage impacts to roads may occur during the subsequent rainy seasons after construction;
- b) Geotechnical issues impacting the road right-of-way that are a result of the initial pipeline construction activities;
- c) Conflicts with future improvements to the County roads that may require pipeline relocation;
- d) Long-term maintenance of the pipeline within County right-of-way; and
- e) Potential issues from pipeline failure.

Request: *To comply with FERC guidance, the FERC should inventory County roads to be used during construction of the pipeline and analyze potential impacts to the roadways and the associated costs for repairing damages prior to completion of the Final EIS.*

- LA3-53 *Additionally, to address the near- and long-term concerns, Cowlitz County requests that the FERC require the applicant to enter into a binding agreement with the County that identifies, but is not limited to items in the following list:*

¹ Title 18--Conservation of Power and Water Resources, Chapter 1--Federal Energy Regulatory Commission, Department Of Energy Part 380--Regulations Implementing The National Environmental Policy Act

Local Agencies

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- LA3-52 NorthernStar prepared environmental Resource Report 5 (Socioeconomics) as part of its application to the FERC in accordance with 18 CFR 380.12(g) which is meant to only address major aboveground natural gas facilities. However, we addressed potential socioeconomic impacts for the entire project in section 4.8 of the EIS

Section 4.8.3.7 has been revised to include additional discussion of NorthernStar's requirements regarding local road permits.

- LA3-53 NorthernStar may voluntarily enter into an agreement with Cowlitz County regarding road repair. We require that all work areas be returned to their pre-construction condition and use, including access roads.

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LA3-54

- a) Standards and procedures to be used for weight restricted bridges;
- b) Standards and procedures to be used for work within County right-of-way. If the applicant does not intend to obtain public works permits, then the agreement must specify how all components of the standard permit will be accomplished;
- c) Responsible party for road work inspections;
- d) Implied liability in the absence of a County public works permit;
- e) Impacts to and coordination with utility franchises;
- f) Long term drainage impacts to County roads due to the project;
- g) Process for future road relocations that may affect the location of the pipeline; and
- h) Transferability of the agreement to future owners.

The agreement must clearly specify responsible parties for each aspect of the project and bind the applicant or future owners to financial assurances to the County. The FERC should require that this agreement be signed prior to issuance of the Final Commission Order.

- 4) **Comment:** The FERC implementing regulations for NEPA [18 CFR Ch. 1 Part 380.12(g)(6)²] require that the FERC:

LA3-55

"Conduct a fiscal impact analysis evaluating incremental local government expenditures in relation to incremental local government revenues that would result from construction of the project. Incremental expenditures include, but are not limited to, school operating costs, road maintenance and repair, public safety, and public utility costs." (emphasis added)

The FERC did not produce a Resource Report 5 Socioeconomics for the pipeline portion of the project stating that the project is exempt from the Socioeconomics requirements because it is not an above ground facility or a major pipeline project. The incremental local government cost of public safety preparedness is not sufficiently addressed for the pipeline portion of the project and concerns have been raised about these costs by the local agencies.

Public Safety

Public safety concerns resulting from the presence of LNG tankers on the Columbia River and a new natural gas pipeline in Cowlitz County have been voiced early and often. In the heavily forested area that the pipeline traverses, if a leak and subsequent fire, or an explosion were to occur along the pipeline, Cowlitz County Fire and Rescue services would be responsible for Public Safety. At current funding, staffing, and equipment levels, Cowlitz County is not prepared to suppress a fire of the nature caused by explosion of a natural gas pipeline. The two nearest fire stations of the Cowlitz 2 Fire and Rescue district, the Bakers Corner and Lexington Stations, are rural facilities with very few staff and limited resources.

Emergency response for a fire or other event on an LNG ship while in transit will rely on the emergency response departments of the five counties surrounding the Columbia River. These county departments will need to be coordinated, trained and ready, and supplied with the appropriate equipment for such an event. At present the counties lack the training, staff, coordinated emergency management plan and equipment to effectively respond to large-scale events on the Columbia River.

FERC guidance for Resource Report 5 Socioeconomics (page 3-57 and 3-58) requires that,

"If concerns are raised during project coordination in the area, this report should be provided for minor projects and those with only below ground facilities. However, for major

² Ibid.

LA3-54 See our response to comment LA3-53.

LA3-55 As discussed in section 4.11.6 of the final EIS, NorthernStar would be required to develop an ERP 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. In addition, the ERP would be required to include a Cost-Sharing Plan identifying mechanisms for funding all project/specific security/emergency management costs that would be imposed on state and local agencies. In addition to the funding of direct transit-related security/emergency management costs, this comprehensive plan would include funding mechanisms for the capital costs associated with any necessary security/emergency management equipment and personnel base.

NorthernStar would be required to submit the ERP, which includes the Cost-Sharing Plan, to the Secretary for review and written approval by the FERC before any final approval to begin construction. If the needed resources are not available and properly funded, operation of the project would not be approved.

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LA3-55 cont'd
pipeline projects that require an EIS, preparation of all or portions of this report may be necessary. In addition, federal, state or local land managing agencies may require the analysis of the socioeconomic impact of pipeline construction as part of the review process for right-of-way grants."

Request: *To comply with FERC guidance, the FERC should inventory and analyze potential impacts to the cost of preparedness for a natural gas pipeline explosion in Cowlitz County. The County requests that the FERC require the applicant to provide funds to Cowlitz 2 Fire and Rescue district specifically for facility improvement to allow space for needed equipment, equipment upgrades and adequate personnel training for response to a natural gas pipeline incident.*

LA3-56
Additionally, the FERC should require the applicant to conduct a detailed study of emergency response requirements. The analysis must be conducted in coordination with emergency response representatives from the five affected counties, and must include evaluation of the following:

- a) Need for appropriate response equipment for use on the Columbia River.*
- b) Staffing levels for fire suppression of a vessel fire and any subsequent effects to nearby structures, natural areas, or vessels.*
- c) Staffing levels for law enforcement assistance to control water traffic during LNG vessel transit on the Columbia River.*

LA3-57
As a result of the study and prior to final Commission Order, the FERC should require the applicant to sign an agreement with all five counties to provide sustained funding from the beginning of operations through decommissioning of the proposed facility to provide for the necessary additional staff and equipment. Funding should also provide for one full time Emergency Management Planner for each of the five counties whose first responsibility would be to create a collaborative five-county river event response program. Additional responsibilities of this position would include ongoing management of training and exercises to ensure preparedness.

LA3-58 5) **Comment:** (Page 4-337) Section 4.8.2.3 discusses effects to property values from the location of the LNG terminal and references two studies that found no appreciable or significant effects. It appears from the discussion in the EIS that these studies focused on actual sale values, but likely did not take into account the effect on reducing the frequency of sales or the time on the market, or the increased or decreased incidence of properties failing to sell when listed. The County has been contacted by at least one property owner that is unable to sell their property, with the most likely reason being proximity to the Kelso-Beaver Pipeline at the location where it is exposed above ground.

The River User Impact Analysis reported a methodology and potential impact specific to evaluating the effect of loss of views on property value specifically for those residences on Puget Island. The report found that a liberal estimate assuming a total loss of view value could cost \$851,253 annually based on the per-day and per-person value of the view for a year. Neither Resource Report 5 on Socioeconomics, nor the Draft EIS introduces this cost impact as part of the analysis on the socioeconomic impact to properties on Puget Island.

Request: *Although the Draft EIS reasons that no property value impact can be determined until there is actual sales data, this valuation of cost due to visual impact should be disclosed in the Draft EIS so it can be reviewed.*

LA3-56 See our response to comment LA3-55

LA3-57 See our response to comment LA3-55

LA3-58 The referenced section of the River User Impact Analysis states that the annual impacts of \$851,253 is the total amount applied to 65 people living in the area, not the per-person, per-day estimated impact, which is identified as \$13,096.

LA3-59 6) **Comment:** (4-322) Section 4.8.1.2 states that in Astoria there are five hotels with 253 rooms within the Zone 1 hazard zone. Zone 2 contains an additional seven motels and hotels with a total of 333 rooms. In addition, the table below was created using the information on pages 4-322 through 4-328. It shows the resources identified in the Socioeconomics section within each zone.

Zone 1	Zone 2	Zone 3
	CRM 29	• Coast Guard Cape Disappointment Station Mooring
	CRM 13	• Warrenton Police and Fire • Port of Astoria • Coast Guard Air Station
	• Hammond Boat Basin • Youngs Bay Bridge (101)	
	CRM 114	• Astoria Middle School (550) • Astoria High School (760)
• Astoria Pier 1 – Cruise ships	• Captain Robert Grey Elementary School (780)	
• Astoria Pier 2 – Commercial fishing and recreation boats	• John Jacob Astor Elementary School (298)	
• Astoria/Megler Bridge	• Clatsop Care Center	
• Astoria Police/Fire and Emergency Information Center	• Columbia Memorial Hospital	
• Columbia River Maritime Museum	• County Health Services	
• River front trolley	• Coast Guard Base	
• Boat anchorages		
• CRM 33		
• Wahkiakum Fire District #2		
• Skamokawa town center		
	CRM 30	• Wahkiakum Fire District #1 • Cathlamet Fire District • Cathlamet town center

Recommendations for risk management within Zone 1 found in the Sandia³ report include "Incident management and emergency response measures should be carefully evaluated to ensure adequate resources (i.e., firefighting, salvage) are available for consequence and risk mitigation."

The primary fire, police, and emergency control center in Astoria is within the highest hazard zone, and in the unfortunate event that an explosion were to occur at that point along the LNG route, emergency response systems would be severely impacted.

Request: In order to understand how this high risk situation will be mitigated, the Emergency Response Plan must be made public for review. Otherwise, there is insufficient information on which to base a decision for approval of the proposal.

LA3-60 7) **Comment:** The Draft EIS provides information about the existing public services in the communities along the Washington side of the LNG waterway route, but it doesn't fully address economic cost of responding to a forest fire in Cowlitz County due to a pipeline breach/explosion. In several places the

³ *Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas spill Over Water*. December 2004 (SAND2004-6258), by the U.S. Department of Energy Sandia Laboratories.

Local Agencies

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LA3-59 The ERP is developed under consultation with appropriate federal, state, and local agencies. The ERP is approved by the FERC, not by the public. NorthernStar would be required to submit the ERP for review and written approval by the FERC before any final approval to begin construction. If the needed resources are not available and properly funded, operation of the project would not be approved.

LA3-60 See our response to comment LA3-55.

K-557

LA3-60 cont'd text includes language similar to that below, which overly minimizes the risk of fires in this region. We would point to the Tillamook Forest fires in the 1930's, 40's and 50's as examples of how forest fires in similar climate and ecoregions have been devastating when started during the dry summer months.

(Page 4-325) Section 4.8.1.5:

"However, because the hazard area surrounding an LNG cargo vessel is transient (moving with the vessel along its route), it is not possible to accurately quantify the economic impact of an incident. Also, given the precipitation in the region, any project-related fire would likely be of short duration and limited extent. Nevertheless, with the implementation of the safety and security measures and conditions outlined in the Coast Guard's WSR, an LNG release along the waterway would be highly unlikely."

Request: The Draft EIS should disclose mitigation for the impact to local fire and rescue services.

LA3-61 8) **Comment:** The Draft EIS uses 125 LNG ships annually throughout the document as a basis for evaluating impacts. However, in some cases the Draft EIS refers to increased capacity from expansion at the terminal by constructing the third storage tank.

Request: The number of ships with the tank expansion should be disclosed and all impacts from that larger number of ships should be analyzed.

4.9 Cultural Resources

LA3-62 1) **Comment:** (Page 4-360) There are three unrecorded potential historic-archaeological sites in the Bradwood Landing APE.

- a) Hunt Mill
- b) OTLC Mill
- c) OTLC Mill logging road

Request: The FERC should clarify what is planned for recording these sites.

LA3-63 2) **Comment:** (Page 4-364) "NorthernStar has not yet documented any additional consultations with Indian tribes, or that it provided the Confederated Tribes of the Grande Ronde with copies of cultural resources reports as requested."

Request: The Draft EIS should disclose when and how will this information be provided and the results of consultations.

LA3-64 3) **Comment:** (Pages 4-364 through 4-366) Several cultural resources issues are unresolved, including:

- a) Effects on previously recorded site 35C016 due to HDD activity under the Columbia River based on Oregon SHPO opinion.
- b) Effects on the historic Hunt Mill pending full results of an archaeological investigation at the mill location.
- c) Status of the mill town of Bradwood under Section 106 of the National Historic Preservation Act due to questions from the Oregon SHPO.

Request: Contrary to the FERC's recommendation that these issues must be resolved prior to beginning construction, these issues must be resolved with the appropriate agencies prior to completion of the Final EIS. This includes any mitigation agreements or Memorandums of Understanding.

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LA3-61 See our responses to comments FA2-13 and FA2-14.

LA3-62 As discussed in section 4.9.4, prior to the initiation of construction, we would require NorthernStar to file additional cultural resources survey and evaluation reports, for the review and approval of the SHPOs and the FERC. We would expect the revised report for the LNG terminal tract to address additional investigations to locate, record, and evaluate the Hunt mill, OTLC mill, and the OTLC mill logging road if elements of these resources are still extant and visible.

LA3-63 In section 4.9.3, we added a new condition that would require NorthernStar, prior to starting construction, to file documentation of additional consultations with Indian tribes, and documentation that it sent the Confederated Tribes of Grand Ronde, and other interested tribes, copies of revised cultural resources reports.

LA3-64 We disagree that the FERC must resolve issues related to the identification of historic properties and assessment of project effects prior to the issuance of our final EIS. It is standard FERC practice to complete compliance with the NHPA after an Order is issued, but before we allow construction to begin. This is because cultural resources inventories cannot be done on lands where access was previously denied until after an Order, when the company could use the power of eminent domain to acquire its pipeline right-of-way easement. See our response to the comment from the state of Oregon (SA1) and response to comment LA3-62. Our recommended mitigation measure in section 5.2 ensures that the FERC will be able to review and approve additional cultural resources investigations and plans, that would, among other things, address potential project impacts on archaeological site 35C016, the identification and evaluation of the historic Hunt mill (if remnants are still extant and visible), and the NRHP evaluation of the townsite of Bradwood.

Local Agencies

4.10 Air Quality and Noise

Air Quality

LA3-65 1) **Comment:** (Page 4-380) The Air Quality section states:

"The second provision requires that certain emission units at stationary sources meet Typically Achievable Control Technology (TACT). The [submerged combustion vaporizer] SCVs would be subject to TACT because the Bradwood Landing LNG facility would require a permit, and the SCVs each would have emissions of more than 1 tpy and would not be subject to major source New Source Review, New Source Performance Standards, or other emission limits specified in OAR 340-226-130(2)(a). Procedures for identifying air pollution control equipment and emission reduction processes that meet TACT are not included within Oregon's regulatory text. However, if the ODEQ notifies NorthernStar that it intends to make a TACT determination for the SCVs, then the proposed facility would need to submit any requested information and comply with the final TACT determination."

Request: Prior to the completion of the Final EIS, the FERC needs to demonstrate how this standard is being complied with.

Noise

No specific comments.

4.11 Reliability and Safety

LA3-66 1) **Comment:** (Page 4-399 and 4-370 to 4-371) The Reliability and Safety section states:

"Methane vapors, the primary component of natural gas, are colorless, odorless and tasteless, and are classified as a simple asphyxiant. Methane vapors may cause extreme health hazards, including death, if inhaled in significant quantities within a limited time. Although very cold methane vapors may cause freeze burns, any cloud resulting from an LNG spill would be continuously mixing with the warmer air surrounding the spill site. Dispersion modeling indicates the majority of the cloud would generally be within 25° F of the surrounding atmospheric temperature, with colder temperatures closest to the spill source. In addition, this modeling estimates that most of the cloud would be below concentrations resulting in oxygen deprivation effects, including asphyxiation, with the highest methane concentrations closest to the spill source. Therefore, asphyxiation and freezing normally represent a negligible risk to the public from LNG facilities."

This statement indicates a risk of asphyxiation to humans if there is a spill over water, but it minimizes discussion of that risk without providing an evaluation of the potential for humans to be near enough to the source of the spill to be affected.

Request: The Final EIS should answer the following questions. What distance is considered "closest to the spill source" such that asphyxiation concentrations could occur? If, as stated elsewhere in the document, other river users will be allowed to travel in the Coast Guard's required exclusionary safety zones around moving LNG ships on a case by case basis, what is the risk of asphyxiation to the large numbers of recreational boaters annually on the Columbia River, and especially during the summer months and fishing seasons (see Comment 1 for Socioeconomics)?

LA3-67 2) **Comment:** There is no discussion either in the section on impacts to/from geology or in this section on safety concerning the location of the proposed pipeline near BPA transmission lines or towers in Cowlitz County. The towers are location in an area of known landslide hazards and the proposed

LA3-65 As documented in the March 2007 Air Contaminant Discharge Permit application submitted to the ODEQ and filed with the FERC, the SCVs would meet the state TACT requirements by being equipped with low-NO_x burners that achieve an emission rate of 30 ppm NO_x. Emissions of CO would be controlled through good combustion practices to 90 ppm. Emissions of other criteria pollutants would be controlled through good combustion practices and the use of low-sulfur LNG prior to odorization, which minimizes the amount of PM₁₀ and SO_x that would be formed from combustion in the SCVs.

LA3-66 Using DEGADIS, FERC staff modeled the distance to methane concentrations which may result in asphyxiation. Those distances would be within the Coast Guard's proposed safety/security zone of 500 yards. We would not expect large amounts of recreational boaters inside this zone during transit of an LNG carrier. Also, the GAO released a report in February 2007 presenting a survey of experts in areas related to LNG risk, hazards, and consequence modeling. As presented in Appendix III of the GAO Report, the 19 LNG risk and hazard experts unanimously agreed that asphyxiation would represent a negligible risk to the public.

LA3-67 The FERC takes a number of factors into consideration when evaluating proposed pipeline routes. With respect to collocating pipelines with other utilities, such as electric transmission lines, experience has shown that these two types of utilities lines are reasonably compatible from a safety perspective, provided sufficient spacing is maintained. Such collocation serves to limit the number of corridors created in a given region.

K-558

LA3-67
cont'd

pipeline will be located both near the towers and near the existing Kelso-Beaver Pipeline. In the event of a geologic event the addition of the new pipeline will add to the hazards in the area.

Request: The FERC should evaluate the hazards or issues due to locating near BPA transmission lines with respect to geologic hazard events in the Final EIS.

4.12 Cumulative Impacts

LA3-68

1) *Comment:* The Port of Vancouver Columbia Gateway project is not included in the list of projects evaluated for cumulative effects in Table 4.12-1. Because this project issued a Notice of Intent (NOI) in September 2006, it would appear to meet the definition of reasonably foreseeable. This project has the potential of adding approximately 365 large vessel ships annually to the total large vessels using the Columbia River. The Bradwood Landing Draft EIS does include the cumulative impacts of the Oregon LNG project with its additional 150 LNG ships, so it appears reasonable that the Draft EIS should also consider the impacts of an additional 365 ships from the Port of Vancouver Columbia Gateway project.

Request: An analysis of how the Port of Vancouver project would add to cumulative impacts should be included in the Final EIS.

LA3-69

2) *Comment:* As an existing past project in close proximity to the proposed pipeline in Cowlitz County, the Kelso-Beaver Pipeline may create a setting where the cumulative impacts of the proposed pipeline could be considered significant. It appears that although the cumulative impacts of the KB pipeline were considered for some elements of the environment, including vegetation, they were not considered for others. Specifically, given the safety requirements for pipelines found in section 4.11.9.1, how does the introduction of a new pipeline adjacent to an existing natural gas pipeline affect safety standards? How does the presence of an older pipeline increase the risk of failure of the proposed pipeline (i.e. if the older pipeline were to suffer a failure and explode, could that cause failure of the proposed pipeline, and if so, what are the additive risks of fire exposure with the added volume of gas from both pipelines?)

Request: The Final EIS should evaluate the cumulative safety impacts of placing the proposed pipeline adjacent to the KB pipeline.

Overall Comments

LA3-70

1) *Comment:* The FERC indicates many issues are unresolved in the Draft EIS including evaluation of cultural resources and consultation with responsible agencies and responses to requests for additional information in the Biological Assessment for the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service. There are other instances where the FERC requests that NorthernStar provide a management plan, the Lighting Plan for example, after completion of the Final EIS, but before construction. The NEPA and SEPA processes require that the public and agencies have the opportunity to comment on all pertinent decision making information as part of the evaluation process.

Request: The FERC should address all comments received on the Draft EIS as well as resolve the outstanding issues like those noted above and re-release a new Draft EIS for review that will allow full review of the project components and analysis prior to issuing the Final EIS.

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LA3-68

The industrial development district levy intended to fund the Port of Vancouver Columbia Gateway project failed in August 2007 and, therefore, the project is not certain. However, we have included it in table 4.12-1 as a potential development in 10 to 15 years because funding could become available in the future.

LA3-69

The FERC takes a number of factors into consideration when evaluating proposed pipeline routes. With respect to collocating pipelines with other pipelines, minimum off-set distances are required, as are other safety measures such as above-ground markers, signage, and pipeline integrity testing. From an environmental perspective, collocation serves to limit the number of corridors created in a given region.

LA3-70

The FERC is not going to reissue the draft EIS for this project, because that document was adequate to comply with the NEPA. Comments on the draft EIS are addressed in this final EIS, in volume 2, Appendix K. See our responses to comments PM6-94, SA1-179, and SA4-3.

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Board of Wahkiakum County Commissioners

George A. Trott
District #1

Daniel L. Cothren
District #2

Blair H. Brady
District #3

December 18, 2007

The Honorable Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street NE
Room 1A
Washington, D.C. 20426

Re: Bradwood Landing LLC Docket No. CP06-365-000

Honorable Members of F.E.R.C:

The Wahkiakum County Commissioners are concerned that the Draft Environmental Impact Statement related to the proposed Bradwood Landing LNG Terminal does not adequately consider the needs of Wahkiakum County. The County, having neutral intervener status in the proposed LNG terminal, requests F.E.R.C. include a permit condition that Northern Star Natural Gas enter into a binding Community Benefit Agreement ("agreement") with Wahkiakum County. This agreement should be included in the Final Environmental Impact Statement, should you approve this project. The agreement is necessary to ensure the needs of Wahkiakum County are permanently aligned with the permit.

Entering into a binding Community Benefit Agreement would be in the interest of all parties interest. We raise this issue because Wahkiakum County is rarely mentioned in the DEIS, despite its close proximity to the proposed facility. In fact, Puget Island is only 500 yards from the proposed facility. The Bradwood Landing LNG terminal may increase the public safety and emergency service costs in Wahkiakum County. The LNG terminal may also affect the county's natural resources, environment, safety, transportation systems, and economy.

Wahkiakum County specifically requests F.E.R.C to require Northern Star Natural Gas (Bradwood Landing) to fund an assessment by an independent entity to determine the emergency service and security requirements of Wahkiakum County, including any gaps in personnel, services, financial resources, and infrastructures. The assessment should also determine the impact the LNG terminal and the proposed dredge disposals will have on Wahkiakum County. An assessment of the economic impacts on the county, both positive and negative also need to be studied. The Final Environmental Impact Statement should include this assessment.

LA4-1

LA4-1

It is not the FERC's practice to require such agreements with local government units as conditions in the EIS process. However, NorthernStar must work with local agencies in development of its ERP. Wahkiakum County is included in the assessment of regional impacts of the project, particularly with respect to the LNG marine waterway. See also our response to comment LA3-55.

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Local Agencies

LA4-1
cont'd

The results of the assessments will be used to form the basis of the Community Benefits Agreement. Wahkiakum County also requests F.E.R.C require the Community Benefits Agreement as a condition to be completed as part of the Final Environmental Impact Statement. Along with this, the Community Benefits Agreement should be a condition to the issuance of the F.E.R.C. permit. There are similar agreements in place at other L.N.G. facilities.

Wahkiakum County has requested Northern Star Natural Gas fund the independent assessment that the county requires. It is appropriate for F.E.R.C. to make this a permit requirement and a condition for the Final Environmental Impact Statement.

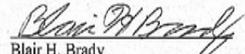
Sincerely,



George A. Trott
Chairman of the Board



Daniel L. Cothren
County Commissioner, District #2



Blair H. Brady
County Commissioner, District #3

K-561

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II.

Description of Proceeding

On June 5, 2006, Bradwood Landing LLC filed an application with the Federal Energy Regulatory Commission (the "Commission") pursuant to Section 3 of the Natural Gas Act ("NGA") seeking authorization to site, construct and operate a Liquid Natural Gas ("LNG") terminal in Bradwood, Clatsop County, Oregon, for the purposes of importing LNG into the United States. Also on June 5, 2006, NorthernStar LLC filed an application pursuant to Section 7(C) of the NGA and parts 157 and 284 of the Commission's regulations for (1) a certificate of public convenience and necessity authorizing the construction, installation, ownership, and operation of the Bradwood Landing Pipeline and other facilities, (2) a blanket certificate to construct, operate and/or abandon certain eligible facilities, and services related thereto, and (3) a blanket certificate to provide open-access firm transportation services.

In August, 2007, the Commission issued its Draft EIS and indicated that any person wishing to comment on the proposed

COMMENT ON FILING DRAFT EIS

Page 2

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EIS must do so on or before December 24, 2007. These comments are pursuant to and comply with that notice.

III.

Position Statement/Background

The Columbia County Development Agency was formed on March 28, 2000, with the mission to alleviate blight in Columbia County as defined in Oregon Revised Statutes 457.010 and specifically to alleviate blight in the Port Westward Industrial Area which had precluded industrial development. On September 11, 2001, the Port Westward Urban Renewal Plan became effective, authorizing Columbia County to incur debt in order to make needed road improvements, among others, to attract development at the Port Westward Industrial Site (the "Site").

Urban Renewal Area Developments

Since September of 2001, Columbia County has incurred substantial debt to make road and access improvements to the Site from Highway 30. The total estimated cost of planned road improvements is 16.5 million dollars, which has been partially funded through grants from the US Department of Commerce, Economic Development Administration. The road and access improvements are scheduled to be completed by summer, 2009. The Columbia County Development Agency will use tax increment

captured from the development on the Site to service the Columbia County debt for the road projects. Therefore, it is imperative that these infrastructure improvements are not delayed or otherwise hindered.

The Site consists of approximately 800 acres of property owned by the Port of St. Helens. Part of the Site is subject to a long term lease with Portland General Electric Company ("PGE"). The Site has a deep draft marine facility with a 1200 foot dock on the Columbia River. As a result of the infrastructure improvements mentioned above, three industrial developments are siting at the Port Westward Industrial Site. The first development is a 400 megawatt gas fired power plant operated by PGE which has now been completed, a 260 million dollar investment. The second development is an ethanol plant currently being built by Cascade Grain Products, LLC. The ethanol plant will generate an additional 125 million dollar investment. The third development is also a 536 megawatt power plant to be built by Summit Westward Energy, LLC. This power plant will generate a 320 million dollar investment. All told, the three developments will generate 705 million dollars in the Clatskanie Community and will provide many needed jobs within Columbia County. Therefore, Columbia County must

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seriously consider any proposed development outside of the Industrial Site that could jeopardize the planned developments and correlating jobs for its citizens.

Concerns with Bradwood Landing Project/Pipeline Alignment

LA5-1

1. Pipeline Interference with Port Westward Access Improvements. The proposed pipeline will run from the Bradwood Island site to the Port Westward Industrial Site to connect with the Kelso-Beaver and Mist natural gas pipelines. The route proposed by NorthernStar will run approximately 37 miles, crossing approximately 13.2 miles of property within the County, and running through the Site. NorthernStar's Proposed Route Alignment as shown in Appendix B of the draft EIS, shows the pipeline alignment following Hermo Road from the Collins Road Intersection into the Site. This map shows the pipeline on the east side of the Road, the same side as proposed for the road project expansion. Columbia County is concerned that the 85-100 foot wide construction right-of-way and 50 foot wide permanent right-of-way may interfere with the road improvements. The County has completed engineering and is preparing to construct improvements to Hermo Road, including widening and overlay, an investment of over 11 million dollars. It would be very expensive at this point to make changes to the

COMMENT ON FILING DRAFT EIS

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LA5-1

Section 4.7.3.3 has been revised to include a discussion about Hermo Road, including our recommendation that NorthernStar document that it has consulted with the Port of St. Helens, the Columbia County Development Agency, and other appropriate agencies and representatives of Columbia County, to determine if its pipeline may have impacts on county improvements in the vicinity of the Port Westward Industrial Area.

K-566

LA5-1
cont'd

road project. No final drawings have been provided to Columbia County showing the exact location of the proposed pipeline in relation to the road improvements. NorthernStar has not coordinated its pipeline alignment with the County so as to avoid unnecessary delays and increased costs of Columbia County's project.

The Draft EIS at page 2-53, indicates that NorthernStar plans to use HDD or the bore method only for "major paved highways and railroads where traffic cannot be interrupted". The County is concerned that Hermo Road will not be considered a "major paved highway" and that NorthernStar will use intrusive construction methods, including road interruptions during its pipeline construction. Several industrial developers are dependent upon having Hermo Road open and available for use after completion of the road improvements. Interruptions from pipeline construction will not be acceptable. In addition, Columbia County is expecting that significant wetland mitigation work will need to be done in conjunction with the Hermo Road improvements and is currently waiting for a Wetland Permit from the Corps of Engineers. While representatives of NorthernStar have repeatedly represented that the pipeline easement will not interfere with Columbia

COMMENT ON FILING DRAFT EIS

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LA5-1
cont'd

County's improvements, Columbia County has no assurance that there will be no such interference, and has no assurance that the project will not increase the wetland mitigation burden or impact wetland conditions in the area.

In summary, the Hermo Road improvements are of vital importance to the three industrial developers described above, as well as to Columbia County's ability to encourage new development within the Port Westward Industrial Site. Therefore, NorthernStar's immediate coordination and cooperation with Columbia County is imperative.

LA5-2

2. Pipeline Interference with Private Property Ownership in Columbia County.

Approximately 13.2 miles of the pipeline is proposed to be built on private property within Columbia County. Yet, Columbia County has received very little information from NorthernStar as to how NorthernStar intends to mitigate the impacts that the proposed pipeline will have on private property owners within the County. Specifically, NorthernStar has not addressed in detail how it will fairly compensate property owners for the required easements or the terms of such easements. Nor has NorthernStar addressed in detail who will be responsible for damage that may be caused by the pipeline

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LA5-2 Landowner compensation and the easement negotiation process are discussed in section 4.8.3.3.

K-568

K-569

LA5-2
cont'd

while in operation or for environmental damage related thereto. The Draft EIS does not specify any protections that must be included in landowner agreements. The Draft EIS indicates that NorthernStar will need approximately 553 acres of land during construction of the property and 234 during operations. The rights-of-way will ultimately be 50 feet during operations. Columbia County is concerned about the amount of impact this much acreage will have on its citizens, and that its citizens will be unduly burdened by the proposed pipeline. Columbia County desires to assure that its citizens are treated in a fair and open manner during the easement acquisition process.

REQUESTS

LA5-3

1. Columbia County requests that the Commission require as a condition of approval that NorthernStar immediately consult and agree with Columbia County as to the location of the pipeline route alignment along public roads in Columbia County, the timing of construction, the type of construction methods, and liability for any changes or costs incurred by Columbia County as a result of the proposed pipeline alignment and operation.

LA5-4

2. Columbia County requests that the Commission require as a condition of approval that any change in the pipeline

COMMENT ON FILING DRAFT EIS

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LA5-3

Section 4.7.3.3 has been revised to include our recommendation that NorthernStar consult with Columbia County to determine if its pipeline may have impacts on county improvements.

LA5-4

Section 4.7.3.3 has been revised to include our recommendation that NorthernStar should document consultation with the Port of St. Helens, the Columbia County Development Agency, and other appropriate agencies and representatives of Columbia County, to determine if its pipeline may have impacts on county improvements in the vicinity of the Port Westward Industrial Area.

LA5-4 | route alignment that may affect the Hermo Road improvements or
cont'd | any public road within the County be approved by the Columbia
County Public Works Director prior to construction.

LA5-5 | 3. Columbia County requests that landowner protections
be required of NorthernStar as a condition of approval.

Conclusion

This proposal stands to have potential substantial impacts on Columbia County residents, on the property owners in the Clatskanie area, on the current industrial development at the Site, on anticipated construction of new industrial projects at the Site, and on the recent investments in road infrastructure made to attract new business to the Site. While Columbia County takes no position either in favor or in opposition to the proposed LNG facility and pipeline, the County's concerns must be addressed during this permit process.

Respectfully submitted,

/s/ Sarah Hanson
Sarah Hanson, County Counsel
Columbia County
Courthouse
230 Strand, Room 318

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LA5-5 See our response to comment LA5-2.

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St. Helens, OR 97051
Telephone: 503.397.3839

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Certificate of Service

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at St. Helens, Oregon, this 19th day of December, 2007.

Sarah Hanson /s/
Sarah Hanson

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Hospital, which serves as the region's only trauma center, and various medical facilities), Columbia River Pilots and Bar Pilots services (pilot services for all ships crossing the bar or traveling the Columbia River), Port of Astoria docks and offices, two major recreational and commercial fishing boat mooring basins, and one transient tour boat moorage facility. U.S. Highways 101 and 30 join in Astoria and meet at the Columbia River at the Astoria-Megler Bridge, a major access point between the States of Oregon and Washington.

Public Safety is provided by local police and fire departments. The Astoria Police Department is comprised of sixteen full-time officers and several reserve officers, who are responsible for 24 hour protection of the City's 11.5 square mile area. The Astoria Fire Department consists of twelve full-time personnel, twelve volunteer firefighters, and four response vehicles, including Hazmat van. The Fire Department's service area is approximately 12 square miles and includes the numerous facilities noted above with contract services to the Tongue Point Job Corps. Center. In addition, through existing Mutual Aid Agreements, Astoria supports the Knappa-Svensen-Burnside Rural Fire Protection District, in which the proposed LNG terminal would be located. The City currently has no marine law enforcement or shipboard firefighting capabilities except with land-based shipboard firefighting with the Maritime Fire Safety Association.

The City has very limited funding resources available for public safety services. It relies on limited property tax revenues that are used primarily for existing personnel expenses. In recent years equipment purchases have depended on grants and loans.

The City's public safety responsibility extends for approximately nine (9) miles along the southerly bank of the Columbia River beginning at approximately Smith Point (Youngs Bay Bridge/Highway 101) continuing eastward to and around Tongue Point. Approximately six (6) miles of the Columbia River shipping channel, from Warrenton city limits near Smith Point, east to Tongue Point are within the municipal jurisdiction of the City of Astoria. Astoria is the second Oregon municipality potentially impacted once the LNG Carrier enters the Columbia River. As described in the DEIS (Section 4.7.1), major portions of the City are located within Zone 1 of concern, including the Astoria waterfront, the downtown retail and governmental center, the Astoria waterfront River Trail, City Aquatics Center, Columbia Memorial Hospital and other major regional medical

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Section 4.7.1, the police and fire stations, three public mooring basins, numerous City parks, six motels, and several residential housing areas (including two large condominiums and four proposed, senior housing facility, housing for the disabled, and several single-family residential neighborhoods). Each of these public assembly areas is sufficiently close to the vessel transit route to warrant heightened safety and security measures.

Procedural History

On June 26, 2006, during the Pre-Filing Process, the City of Astoria wrote to the Commission to advise them that the City had a number of safety related concerns regarding the potential transit of LNG carriers through the corporate limits of the City of Astoria, which would occur should the Bradwood Landing site be approved by the Commission. A copy of that June 26, 2006 letter was also included in the Safety Advisory Report submitted to the Commission by the Oregon Department of Energy, attached as Appendix K to the DEIS. On June 26, 2006, City timely moved to intervene, Accession No. 20060706-0181. Since that time, both Astoria's Police Chief and Fire Chief have participated in various meetings and workshops held in conjunction with preparation of the U.S. Coast Guard Waterway Suitability Assessment Report ("WSR") dated February 28, 2007, attached as Appendix H to the DEIS, and with respect to development of an Emergency Response Plan ("ERP").

Comments on the DEIS

The DEIS repeatedly refers to the same discussion concerning waterway safety and security throughout the voluminous report. Specifically, the DEIS recognizes significant potential impacts within Zones 1 through 3 due to an accidental or intentional breach of an LNG vessel resulting in a release of LNG during transit or while at the berth. It acknowledges the risk of severe consequences, with injuries ranging from mild to fatal, being most severe in Zone 1 and decreasing outward through Zones 2 and 3. See, e.g., DEIS, p. 4-322. Yet, the DEIS uniformly concludes that "with the implementation of the safety and security measures and conditions outlined in the Coast Guard's WSR (see Appendix H), an LNG release along the waterway would be highly unlikely." *Id.* See also DEIS, p. 4-273 ("Effects on structures within Zone 1 would be most severe, while buildings within Zone 3 would be less impacted. However, with implementation of the mitigation measures

K-575

LA6-1

LA6-1 See our response to comment LA2-1.

LA6-1 cont'd described in the Coast Guard's WSR, an LNG release along the waterway would be highly unlikely."); DEIS, p. 4-275 ("With the implementation of the safety and security measures outlined in the Coast Guard's WSR, it is highly unlikely that there would be a release of LNG from a passing LNG ship that would lead to a spill and related pool fire affecting planned commercial or residential developments along the waterway."); DEIS, p. 4-279 ("Those facilities within Zone 1 could sustain damages to structures, features, or vegetation. Facilities within Zone 3 would be less affected. However, with the implementation of the safety and security measures outlined in the Coast Guard's WSR, the chance of a spill would be extremely remote.").

As a result of these findings, the FERC staff made a number of recommendations which are described in detail in sections 4.11.5.5 and 4.11.6 of the DEIS (pp. 4-429 through 4-436) and further documented in Section 5.2, Conditions 42, 62 and 63. These conditions fail to properly acknowledge, however, that the Coast Guard measures are *necessary requirements* and not simply preliminary recommendations with the details to be worked out later. Compare DEIS, p. 4-432 ("the WSR recommends additional facilities and infrastructure to make the waterway suitable for LNG marine traffic") with WSR, App. H ("I have determined that to make the Columbia River suitable for the type and frequency of LNG marine traffic associated with this project,

LA6-2 additional measures will be necessary ... [and] must be put into place"). Additionally, the DEIS minimizes and generalizes the specific requirements outlined by the Coast Guard. For example, on page 4-432, the DEIS identifies one item as "augmentation of shore side firefighting capabilities to provide protection services to the facility as well as communities along the river" when the original WSR (p.4 of 6) stated "shore side firefighting resources and training will need to be augmented ... [including] adequate cost-sharing arrangements for project related training, equipment, maintenance, and staffing ... for all communities impacted by the project."

LA6-3 Representatives of NSNG have had approximately two years to make firm commitments to state, county and local law enforcement and fire agencies concerning these requirements, and have not done so. The proposed conditions that the WSR be updated annually and NSNG commit prior to commissioning to implement the required measures is simply too little too late. Additionally, the conditions recommending the Emergency Response Plan ("ERP") and cost-sharing plan be submitted prior to initial site preparation likewise

Local Agencies

LA6-2 See our response to comment LA2-2.

LA6-3 See our response to comment LA2-3.

LA6-3 do not provide sufficient certainty for local communities, like Astoria.

cont'd

As documented throughout the DEIS, implementation of these measures is critical to the viability of the project and the validity of the DEIS assessment. Absent binding agreement with the state, county and local fire and police agencies concerning security and safety requirements, the project cannot proceed and the entire DEIS safety and security analysis is rendered meaningless. Therefore, NSNG should be required, *prior to issuance of the final order issuing certificates ("Order" or "Certificate")* to reach an agreement in principle, in a form acceptable to each respective agency, with each state, county and local municipality affected on the level of resource funding it will commit for safety and security requirements including, without limitation, capital requirements for new equipment, resources for additional staff, and training for all affected personnel (both career and volunteer). The agreements should address the effects of heightened security alerts and unfunded future governmental mandates. These critical decisions cannot and should not be put off until after the Certificate issues.

The Commission cannot fulfill its statutory duty to address state and local safety considerations required by 15 U.S.C. § 717b-1 (Section 311(d) of the Energy Policy Act of 2005) by simply stating that these important details will be worked out after the Certificate issues. See DEIS, Appendix K, Response of the Federal Energy Regulatory Commission to the Safety Advisory Report of the Oregon Department of Energy for the Bradwood Landing Project (referring to proposed Conditions 42, 62, and 63). The statute requires meaningful resolution of state and local safety considerations "prior to issuing an order pursuant to section 717b." See 15 U.S.C. § 717b-1(b) and (c). Therefore, NSNG must be required to address Astoria's requirements (as well as the other jurisdictions affected), outlined in its June 26, 2006 letter, and commit to the funding necessary to implement these requirements, prior to issuance of any Order approving the project.

LA6-4 Secondly, with respect to "the current capacity of the local public services to respond to an incident or fire at the LNG terminal," the DEIS recognizes "that significant gaps exist in fire fighting capacity for both shore and water side fire fighting response." DEIS, p. 4-342. These gaps were also described in the State Advisory Report (Appendix K) filed pursuant to 15 U.S.C. § 717b-1. The DEIS states that "NorthernStar has

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LA6-4 See our response to comment LA2-4.

LA6-4 cont'd indicated that trained personnel and fire fighting equipment would be maintained at the LNG terminal in the event of an emergency." Id. However, there is nothing in the DEIS to indicate that NSNG has committed to anything more than that which is required by applicable regulations and requirements found in 49 C.F.R. Part 193 and NFPA 59A. The proposed solution to address this acknowledged issue, the requirement to produce an ERP prior to construction, is simply inadequate.

Given the lack of local capacity and the distance from supporting fire fighting services, NSNG must be required to *enhance* fire protection. It is insufficient that operations and maintenance personnel will be trained in safe shutdown and evacuation procedures, etc. as already required by applicable regulations. If an incident occurs at night, when only a limited operations crew is working, there may be insufficient personnel to man all of the fire fighting equipment likely to be present. The Commission and the public can be assured that dedicated fire fighters with proper training and equipment will be readily available to address any incident at the terminal. Local public safety services will require increased resources to meet this need at the facility and in the community.

LA6-5 Lastly, with respect to protection of Cultural Resources in the event of an incident, the DEIS states that "NorthernStar indicates that it would produce a Cultural Resources Management Plan that would outline procedures for coordination with first responders in order to protect historic properties." DEIS, p. 4-359.

Astoria is the oldest city west of the Rockies, and has three National Register Historical Districts, two of which abut the Columbia River. The City has about 800 historic properties and over 70% of the City's housing stock was built prior to 1950. This commitment to protect historic properties is not reflected in any of the proposed conditions prepared by FERC Staff. See Section 5.2. Therefore, Condition no. 36 (requiring such Cultural Resources Management Plan) must be modified to include a requirement to coordinate, and reach agreement, with first responders on the method and means to protect historic properties which are located within the Zones of Concern, especially historic buildings along the waterway which are most likely to be adversely impacted.

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LA6-5 See our response to comment LA2-5.

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Conclusion

As described herein and in its prior correspondence (incorporated by reference), Astoria requires a commitment to fund necessary capital and on-going expenditures related to police and fire protection before it can agree to any proposed ERP. NSNG should be required to document such commitments, in a form agreeable to Astoria, before any final Order from the Commission issues. The proposed mitigation conditions, which delay finalizing such monetary commitments until after the Certificate issues, are inadequate and contrary to statutory requirements enacted as part of the Energy Policy Act of 2005. Additionally, based on the recognized need, NSNG should be required to implement and maintain an Industrial Fire Brigade as described in NFPA 600. Lastly, the required Cultural Resources Management Plan must contain provisions addressing the risk to historic properties located within the Zones of Concern and include agreements with local first responders documenting the method and means for protecting these properties and sites.

December 21, 2007

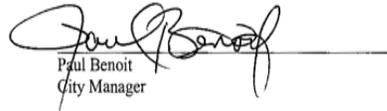
Respectfully submitted,



Willis L. Van Dusen, Mayor
City of Astoria
1095 Duane Street
Astoria Oregon 97103
Telephone: 503-325-5824

CERTIFICATE OF SERVICE AND MAILING

I hereby certify that I have this day served the foregoing document on each person designated on the official service list compiled by the Secretary in this proceeding on December 21, 2007, by first class mail, postage prepaid.



Paul Benoit
City Manager

Attest:



Paul Benoit, City Manager

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

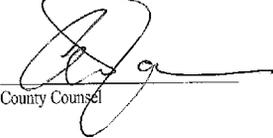
Bradwood Landing LLC) Docket No. CP06-365-000
NorthernStar Energy LLC) Docket Nos. CP06-366-000
CP06-376-000
CP06-377-000

COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT BY
INTERVENOR, CLATSOP COUNTY

Intervenor Clatsop County, Oregon hereby responds to the Commission's request for comments on the Draft Environmental Impact Statement (DEIS) in this matter.

Due to emergency conditions in Clatsop County resulting from recent high winds and flooding, the County has been unable to independently review the DEIS in a timely manner. However, the County has contracted with the Columbia River Estuary Study Taskforce (CREST), an intergovernmental agency in Clatsop County charged with the responsibility of providing technical advice to member jurisdictions regarding matters pertaining to Coastal Zone Management and the Columbia River Estuary, to conduct the DEIS review on the County's behalf. That review by CREST is attached hereto as Exhibit A and is submitted herewith.

For Clatsop County



County Council

Local Agencies

K-580

EXHIBIT A



750 Commercial Street, Room 205, Astoria, Oregon 97103
Phone: (503) 325-9435, Fax: (503) 325-9469
Email: crest@columbiariver.org
Website: www.columbiariver.org

DATE: 12/21/2007

To: Kimberly D. Bose, Secretary
FEDERAL ENERGY REGULATORY COMMISSION
888 First Street N.E., room 1A
Washington, D.C. 20426

From: Columbia River Estuary Study Taskforce (CREST), representing Clatsop County, OR
750 Commercial Street, room 205
Astoria, OR 97103

RE: Bradwood Landing Draft Environmental Impact Statement Review
Docket No. CP06-365-000, CP06-366-000

Dear Ms. Bose,

Clatsop County of Northwest Oregon contracted with CREST on October 5, 2007 to review the Bradwood Landing Draft Environmental Impact Statement (DEIS) and provide the following comment letter. Upon approval by the Clatsop County Board of Commissioners and CREST Council, CREST has been authorized to submit this document directly to FERC *on behalf of the County*. Please note that CREST remains neutral in regards to this project and does not intend to submit its own comments on the DEIS.

We have focused our technical review efforts on the project concerns and impacts voiced most often by Clatsop County residents, including environmental impacts to the communities and the estuary, as well as associated recreational and commercial uses supporting the regional economy. Our review excludes project reliability and safety, Chapter 4.11 of the DEIS; please refer to Clatsop County's July, 2007 *Public Safety Assessment for the Proposed Bradwood Landing LLC/NorthernStar Gas LNG Project* report (prepared by PBS&J consultants) for discussion of these issues. In addition, our review excludes the land use issues that are affected by the County's land use decision-making process. Please refer to the local land use process for the Counties' comments on those issues.

Over the last several decades Clatsop County has participated in extensive scientific studies in the Lower Columbia River estuary through membership in the ongoing

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Columbia River Estuary Study Task Force and partnership in major restoration projects and plans. Researchers have shown that the estuary provides critical habitat for a variety of salmon life history stages, from fry to adults. Importantly, juvenile salmonids utilize the estuary as a rearing, refuge, and feeding area prior to transitioning into the ocean environment. Comprehensive plans have been developed by all levels of government over the last 30 years, addressing fish and wildlife restoration in the Columbia River and its estuary. Maintaining and restoring the estuary is a critical part of the long-term multi-billion dollar Columbia River restoration effort. Despite weakened fish stocks, commercial and recreational fishing in the region is still very significant, providing tens of millions of dollars in county revenue annually (Clatsop County Fisheries Project, commercial and sport crab / salmon / sturgeon commercial fishing, etc.). The eventual success of the long-term fishery restoration efforts will yield increased economic benefits to the regional economy by restoring fishing opportunities lost to the protection of weak stocks.

Because the scale of this project is unprecedented in the Lower Columbia, and we feel the DEIS is inadequate in several ways, we recommend that FERC proceed slowly through the permitting process to ensure that the final EIS (FEIS) address all of the concerns brought forward by Clatsop County and the various involved state and federal agencies.

General Review of Clatsop County's Overarching Issues

I Consequences of Major Liquefied Natural Gas and Vessel Fuel Oil Spills to Clatsop County Communities and the Waterway

The risk of a major LNG spill and an associated vessel fuel oil spill on the waterway is taken very seriously by Clatsop County, even though the DEIS indicates there is a low probability of such an occurrence in any given year. The adverse consequences of a major LNG shipping disaster to citizens of affected communities and biological resources of the estuary would be vast, requiring assurances for post disaster remedies. There is no predictive capability for such disasters, and prevention control for LNG transit disasters is worsened post September 11th due to the fact LNG vessels in particular have been identified as a prime target for malicious intent. In addition, this particular LNG transit corridor is very narrow in places and adjacent to shoreline communities, making it difficult or impractical to fully defend. The County wants to make sure that all possible funding mechanisms are in place to assure any major, accidental or intentional, LNG transport incident will be followed up with timely and complete remediation, restitution and recovery to both the human and natural environments.

We understand the difficulty in estimating the level of damage to life and property under different spill scenarios. The DEIS and its references do offer enough information for us to conclude that if a major accident/incident occurred adjacent to a near shore community like Astoria, life and property damages would be substantial and long

K-582

LA7-1

LA7-1 See our response to comment FA2-35.

LA7-1
cont'd

lasting. When a small community endures a major disaster there is a potential to permanently change its character, especially if post emergency disaster response is lacking. In addition, restoration is complicated in old cities like Astoria (oldest west of the Mississippi) having large numbers of heritage sites.

There is also a serious threat to the estuary once an LNG vessel's gas containers become damaged, not due to the LNG, but rather shattering and break-up of the ship allowing a major spill of vessel fuel oil into the water. The Resource Report 9 (Air and Noise Quality) that Bradwood LLC/NorthernStar submitted to FERC states that bunker fuel oil will be used in approaching, maneuvering, and departing from the terminal berth. Industry resources also show that conventional LNG carriers, although often cited as exclusively using LNG cargo boil-off when underway, get about 50% of their energy requirement from heavy fuel oil. Released gas vapors that are trapped in confined areas of the ship after an incident can damage the ship's structure upon ignition or detonation. A spill of tens of thousands of bunker fuel oil would be quickly distributed throughout the estuary by swift river currents and tides to wetlands and shorelines. Bunker fuel oil is made up of compounds harmful to fish and wildlife and known to sometimes cause off-flavor in harvested fish species. During an LNG / oil spill emergency, safety issues delay clean-up, allowing distribution of contaminants.

A major spill of bunker fuel oil could potentially result in significant economic impacts to the region, including suspension of some commercial fisheries due to contamination and possible reduced fishing opportunity over the long term. For example, if there is documented loss of a significant number of salmon listed as endangered species, it may be deemed necessary to further restrict the already severely restricted fishing opportunities in the estuary. A major oil spill would also impact tourism and recreation based economies like those on the Lower Columbia because of the visual blight, off-flavor in fish and pollutant odors.

In order to assure full remediation, restitution and recovery of the community and the estuary following an LNG and/or fuel oil spill it is necessary to have the Federal Energy Regulatory Commission's license require LNG shippers and Bradwood facility operators and their successors to be fully bonded and insured for the worst case spill clean-up and response. This includes damage compensation/restitution obligations for all lost uses over the entire recovery period.

We believe there is Federal guidance for FERC to use license terms and conditions to provide surety for full remediation and compensation. First, LNG vessel transit on the Columbia River is an integral part of the Bradwood project; without it the proposed project could not exist. Federal designations for the Columbia River estuary indicate it is one of the Nation's most important and environmentally sensitive waterways (one of seven nationally designated by Environmental Protection Agency's National Estuary Program). Guidance to FERC is provided by the Federal Power Act requirement "... to consider the extent to which a project is consistent with Federal or state comprehensive

Local Agencies

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LA7-1
cont'd

plans for improving, developing, or conserving a waterway or waterways affected by the project" (FPA Section 10(a)(2)(A)). FERC has adopted 75 Comprehensive Plans that address improvement /restoration of the Columbia River for fish and wildlife resources and recreation. The permit authorized by FERC should provide adequate protection and mitigation of fish and wildlife and other beneficial public uses such as recreation. The Federal definition of mitigation does include compensation for an unavoidable impact. Since spills may occur despite every required prevention measure, such spills would be considered unavoidable and therefore require compensation for impacts.

Another source of guidance to FERC is the federal endangered species program recovery plan for the Columbia River, which includes the estuary as critical habitat. The health of the estuary is essential to achieving recovery of the listed anadromous species, all of which spend time in the estuary. Given that recovery plans examine the exposure of weak populations to harmful events over a 100 year period, even events that occur infrequently like LNG / oil spills could reduce chances of recovery for the species without remediation and compensation.

II Recreational and Commercial Fishing Impacts

The DEIS does not adequately analyze or mitigate the significant potential conflicts between the LNG ships using the waterway and recreational and commercial boating activities (sport fishing, commercial fishing, power boating, sailing, paddling, waterfowl hunting). The Oregon Department of Fish and Wildlife (ODFW) estimates the angler boat count downstream of the Astoria-Megler bridge to range between a low of 613 in April to a high of 19,644 in August, with a total of 46,547 boats annually engaged in recreational and commercial fishing for crab, sturgeon, salmon, halibut/bottomfish, tuna, and whiting.

LA7-2

The DEIS states an LNG vessel will initially be seen on the river approximately every 1.5 days. All other vessels are expected to move out of the 500 foot security exclusion zone for a quarter hour or more before resuming their position. Commercial fishermen may face an even longer delay, given the time it takes to retrieve and deploy nets and other gear. In some reaches of river, excluded vessels may have to move to shallow areas where they must contend with wakes larger than other shipping vessels, sand bars at low tide and obstacles in the fog. Some recreational boaters may choose to leave the river, impacting traffic at boat ramps. When considering the entire volume of boat anglers and pleasure boaters cumulatively and the channel conditions, we believe the impact to boat traffic is significant rather than the inconvenience conclusion in the DEIS. Mitigation considered for this significant impact could include: (1) timing LNG transit to avoid peak recreational boating or fishing periods/times of day identified by local and state knowledge, including the Astoria Regatta, Great Columbia Crossing and peak fish migrations; (2) for those fishing periods that cannot be avoided, redirect angling effort to areas outside the exclusion zone by funding the development of strong fisheries in tributaries and side bays of the estuary, and (3) improvement of boat ramp facilities.

Local Agencies

LA7-2

Our EIS does not specify any time period (such as a quarter hour or longer for commercial fishing boats) that other vessels may be required to move out of the way of LNG carriers transiting up the waterway to the proposed Bradwood Landing LNG terminal. If the LNG carriers travel at speeds between 8 to 12 knots up, they would be past other boats in a matter of minutes. Thus we are able to conclude, in section 4.7.1.4, that the project would not have any significant impacts on other river users.

K-584

K-585

LA7-3 The communities on the Columbia River estuary presently have a focus on developing tourism and recreational uses. LNG carriers and their heavily armed escort vessels have a high potential to create an unwelcome and/or unsafe appearance not conducive to many tourists and recreational fisherman seeking a relaxing experience. The uncomfortable response of visitors to LNG transit would be expected to worsen if there are future LNG shipping disaster(s) anywhere in the county. If visitors choose other coastal recreation opportunities because they are uncomfortable with the LNG transit, the regional economy would lose millions of dollars over the long-term spent on retail, hotel and guide services. The DEIS should disclose and analyze the economic value of tourism and recreation to the region and then estimate a range of potential long-term lost visitor use relating to LNG transit, including recreational fishing, visiting cruise ships, the Lewis and Clark National Heritage Park, and the proposed Columbia Pacific Heritage Area. We believe the lost value over the long-term could be significant and recommend conducting an opinion survey of potential visitors that gauges recreational and tourism conflicts with LNG transit in general (thus avoiding potential tourism impacts of the survey itself). If significant losses are estimated, mitigation could be considered in the form of funding tourism promotions to off-set estimated losses.

III Incomplete and Inadequate Draft Environmental Impact Statement

LA7-4 Importantly, there has not been a third-party market analysis concerning whether or not the LNG gas provided via the project fulfills the purpose and need of the project. Spokespersons for the William's Northwest Pipeline say that the company doesn't have room for all of the gas the Bradwood facility would provide and that, even with project declines in supply from Canada and the Rocky Mountains, there is not enough demand for natural gas in Oregon and Washington to utilize all of the Bradwood supply. The evidence indicates that the Bradwood Landing project will be most fully realized when, in the foreseeable future, the Palomar pipeline is connected to the proposed facility. We believe that the Palomar pipeline is therefore not a related foreseeable project (i.e. a potential cumulative impact as cited in the DEIS), but rather a project the proposed LNG facility is dependent upon. If this is the case, FERC staff should require that the final DEIS be amended to include environmental impacts associated with the Palomar pipeline.

LA7-5 In addition, FERC and EPA approved comprehensive plans for protection and restoration of the Lower Columbia River are an important guide to the Federal licensing process for this large scale project but are omitted from the DEIS analysis. The intent of these comprehensive plans is to restore the fishery, ecological function and fishing opportunity, providing a significant value to the local economy. We recommend the DEIS list and review the 25 FERC approved Comprehensive Plans and use them to guide development of a mitigation package that fully mitigates for all the project impacts to the Columbia River estuary and its tributaries.

Local Agencies

7

LA7-3 We do not believe that LNG marine traffic in the waterway would represent a safety risk to adjacent communities, as explained in section 4.11.5. Nor do we think that the project would have any negative impacts on the local tourist industry. We do calculate the value of recreation and tourism in the region in sections 4.7.1.4, 4.8.1.8, and 4.8.2.8.

LA7-4 As discussed in section 1.0, the Williams Northwest pipeline would have capacity for the natural gas from the Bradwood landing pipeline project. We do not agree that there is not enough demand for natural gas in the Pacific Northwest to utilize the Bradwood Landing Project supply. See our discussion of purpose and need in section 1.1. Also see our response to comment PM1-58. As described in section 3.1.2.2, we consider the Palomar Project to be a separate undertaking from the Bradwood Landing Project. Neither project is inter-dependent on the other. If Palomar is not authorized or built, the Bradwood Landing Project could still go forward, and vice versa.

LA7-5 See our response to comment PM5-28.

K-586

LA7-5
cont'd

Clatsop County, Oregon state agencies, and federal agencies commenting on the DEIS have identified currently unmitigated project impacts in the waterway, on the site and along the pipeline(s) and we recommend that their comments produce binding mitigation commitments. In this manner, Clatsop County recommends that NorthernStar use their project development funds for full and complete mitigation of the project impacts consistent with the underlying intent of Federal, state and local rules and guidance. We expect that funding such a complete mitigation package would approximate the project proponent's voluntarily offer to spend \$59 million dollars on unspecified salmon enhancement (e.g. endowments for mitigation areas, bonding and insurance for spill contingency and damage compensation, various omitted mitigation needs, etc.). This Salmon Enhancement Initiative will be completely outside of any license or permit requirements (enhancement is not ruled to be a necessary environmental commitment for a project). One of the realities of enhancement offers is that they can be readily disregarded by a successor company or owner.

LA7-6

Finally, the DEIS alternatives analysis is superficial and incomplete. We recommend completing a robust alternative analysis worth of the guidance in the comprehensive plans and the community's focus on the estuary. Potentially significant impacts for which we recommend additional analysis in the DEIS are detailed further in the specific comments (including references on key points), including recreational conflicts, wetland mitigation areas and their management, and geologic hazards.

IV Geologic Hazards Associated with the Bradwood Landing Location

LA7-7

The geology and geologic hazards associated with the location of NorthernStar's proposed facility at Bradwood are critical issues. The Oregon Department of Geology and Mineral Industries (DOGAMI) labels the site as having severe natural hazard potential. The DEIS attempts to address the applicable geologic hazards, but in many sections the research is incomplete. The County believes that for the DEIS to be considered complete and adequate it must disclose new specifications and mitigation measures for foundation problems at the facility related to liquefaction and ground stability during major subduction-zone earthquakes, adequate tsunami wave modeling, accurate pre-construction landslide and debris flow characterizations (including records of historical landslides omitted from the DEIS) and new pipeline routes in response to geologic hazards. In addition, it is necessary to address HDD stream crossing methods and landslides associated with pipeline construction potentially impact important tributaries.

V CZMA Consistency Requirements Regarding Federal Actions

The Coastal Zone Management Act of 1972 is based on the premise that such management is best achieved at the state and local level (CZMA Sec. 302(i)). This plan directs the states to create coastal management programs that are consistent with this Act. Oregon's Coastal Management Program, which is federally approved, directs local governments in the coastal zone to create laws and policy consistent with CZMA

Local Agencies

LA7-6

We disagree. We believe our alternatives analysis in the EIS is robust and complete.

LA7-7

Concerns raised by DOGAMI regarding geologic hazards are discussed in the responses to comment letter SA1. See also our responses to comments PM3-39, LA7-25, and LA7-31.

objectives. In conjunction with the State program, Clatsop County has integrated the CZMA into its local comprehensive plan and thus become an agent of the State. This gives the County, as directed by the CZMA, the authority to determine if a federal action, such as the siting of energy facilities, is consistent with local land use laws. (CZMA Sec. 307). Specifically, CZMA Sec. 307 states that, "No license or permit shall be granted until the state or its designated body has concurred with the applicant's certification".

LA7-8

The proposed Bradwood Landing LNG terminal site is located within the authority of the CZMA under Oregon designation. Due to this fact and the County's role as an agent of the state on this issue, FERC has the responsibility to integrate Clatsop County's land use decisions relevant to the CZMA into the final EIS. Thus, the decision of the County to concur with or object to the Bradwood Landing proposal must be an integral part of the final FERC approval process. As a result, any conditions attached to a County approval that is relevant to the CZMA must be incorporated into the final EIS by the authority of the CZMA. If the County's decision is to deny, or if NorthernStar asserts that some of the conditions are too restrictive and wants them removed, FERC must prove that the activity is consistent with the CZMA or otherwise necessary in the interest of national security (CZMA Sec. 307(c)(3)(A)).

At the time this document was written, the County is currently in the process of analyzing and deliberating on NorthernStar's consolidated land use application for approval or denial. It is important for FERC to understand that the Oregon DLCD cannot issue the mandatory CZMA consistency certification for NorthernStar's proposed project unless Clatsop County finds it consistent with its Comprehensive Plan, Land and Water Development and Use Ordinance, Standards Document and the Columbia River Estuary Management Plan. All of these documents have been acknowledged by the State as being in compliance with the statewide planning goals and thus are a part of CZMA consistency.

LA7-9

In the final EIS, FERC should be guided by specific CZMA goals regarding development on the coast and the siting of an energy facility. A management objective of coastal development is minimizing the loss of life and property caused by improper development in flood-prone, storm surge, geological hazard and erosion-prone areas. (CZMA Sec. 303(2)(B)). In NorthernStar's case, the Bradwood terminal and pipeline locations are prone to flooding, geologic hazards, erosion and other hazards associated with heavy storms. In addition, the CZMA states that priority consideration should be given to coastal-dependent uses and orderly processes for siting major facilities, such as energy, in locations that are in or adjacent to areas where commercial or industrial development already exists (CZMA Sec. 303(2)(D)). In regards to NorthernStar, the Bradwood location is on property designated for industrial use, but that use is limited by the local comprehensive plan to industrial uses smaller than the proposed facility. Also, there is no adjacent industrial or commercial development near the Bradwood site. The site is surrounded by forested lands and the nearest industrial operator is several miles away.

Local Agencies

LA7-8

We have revised the EIS to indicate that on March 20, 2008, Clatsop County made a final decision to approve the land use changes proposed by NorthernStar, subject to specific county-imposed conditions.

LA7-9

See our response to comment LA7-8.

K-587

VI Other Primary Clatsop County Concerns

Other County impacts that will be addressed in brief in the Specific Comments section include:

- LA7-10

➤ Sediment impacts in watersheds along the pipeline route: The focus is on streams tributary to the estuary included in comprehensive restoration plans and/or supporting anadromous fish spawning. Potential sediment impacts can be derived from active landslides triggered by pipeline activities, and pipeline crossings, both open trench and borings. Mitigation measures should include careful monitoring of streams and watersheds for sediment discharges followed by clean up of significant deposits in spawning riffles and juvenile rearing areas.
- LA7-11

➤ Mitigation Plans: Clatsop County requests to be included among the applicable agencies that will participate in finalizing the Bradwood compensatory mitigation package and third-party monitoring and reporting programs. Site-specific mitigation area agreements are recommended that will minimally include: (1) An endowment to manage each of the areas in perpetuity in a manner that avoids impacts to neighboring properties, (2) funds covering all start-up costs (3) designation of a qualified land management agency, and (4) providing the county with in lieu taxes if the land owner/manager is tax exempt.
- LA7-12

➤ Fish entrainment at water intakes: Although the proposed facility will have a ballast water and engine cooling installation that prevents entrainment, it is not compatible with all the ships that transport LNG. A requirement is recommended that limits the LNG facility to contract with ships having compatible equipment and an associated monitoring and compliance program.
- LA7-13

➤ Shoreline erosion caused by LNG vessel wakes: The LNG vessel produces a wake that is larger than the typical cargo vessels. The DEIS does not disclose the presence of numerous dikes along the Columbia River that protect homes and property. Many of the dikes are in need of maintenance and upgrading. County recommends analyzing shoreline erosion affects upon dikes due to the LNG vessel wake and mitigating any unavoidable impacts found to be significant.

Specific Comments Related to Clatsop County's Overarching Issues

Alternatives Analysis

- LA7-14

The Alternative Analysis should be more robust and complete to utilize the Federal guidance of FERC approved Comprehensive Plans concerning restoration of the Columbia River and its estuary and EPA special designation of the Columbia River in the National Estuary Program (Section 10 of the Federal Power Act). Specifically, off-shore facilities alternatives that avoid impacts to the estuary should receive more analysis

Local Agencies

- LA7-10

The impacts of pipeline construction and sedimentation on surface waters and aquatic habitats are discussed in sections 4.3.2.4 and 4.5.3.1, respectively. To minimize impacts on surface waters, NorthernStar would implement its Waterbody and Wetland Construction Procedures Plan, pipeline ESC Plan for Oregon, and SWPPP for Washington as well as our Plan and Procedures. In addition, NorthernStar is consulting with the FWS, NMFS, and state agencies regarding potential mitigation for replacement of in-stream habitat. We have included a recommendation that NorthernStar finalize its Waterbody and Wetland Construction and Mitigation Procedures Plan that describes the specific methods of in-water habitat mitigation to be conducted, and file that plan for our review and approval prior to pipeline construction. NorthernStar would compensate for impacts on surface waters and aquatic resources that could not be avoided by setting aside or developing a number of mitigation sites, which are described in its Compensatory Mitigation Plan. See our response to comment FA2-10 regarding compensatory mitigation.
- LA7-11

County-level involvement is typically welcomed as part of establishing wetland mitigation within the CWA permitting process. Contacting the ODEQ to facilitate such involvement is recommended.
- LA7-12

See our response to comment PM1-31.
- LA7-13

See our response to comment FA4-14.
- LA7-14

We disagree. We believe that no more analyses are necessary for our consideration of a potential offshore LNG terminal alternative. Our detailed feasibility analysis of this alternative is presented in section 3.1.4. The ABS report summarized in our discussion indicates that conditions offshore in the Pacific Northwest result in rougher seas than found offshore of the Northeast and Gulf coasts. See our responses to comments PM2-24, FA2-4, LA3-15, and IND115-2.

K-588

LA7-14
cont'd

than that provided in the DEIS. The DEIS does state that "an offshore LNG import terminal alternative would avoid some of the environmental impacts of the proposed Bradwood Landing Project, such as effects associated LNG marine traffic up the Columbia River, critical salmon habitat in the river, nearby population and visual effects, and impacts on terrestrial resources, including wetlands." It then goes on to conclude: "However, based on our review of the analysis conducted by ABSG and NorthernStar, we do not consider an LNG terminal off the coast of Oregon to be a viable alternative to the proposed project because of the rough sea and weather conditions and the additional environmental impacts associated with the longer send out pipeline." The DEIS should place greater weight on protecting the Columbia River and its estuary than the sandy bottomed sea floor area supporting the send out pipeline to the off-shore facility based upon the Federal guidance in both the FERC approved Comprehensive Plans that appear relevant to natural resources and recreation in the Lower Columbia River (see the following list), and EPA's inclusion of the Columbia Estuary in the National Estuary Program (program description also provided below) and the Nation's Great Water Body program. Furthermore, in a relative sense the off shore area has much more dilution capacity than the estuary for assimilating fuel oil spills. In terms of the feasibility of using the off-shore facility, such engineering analyses are outside of our capability; however we note in the following figure from a FERC staff presentation that there are proposed LNG facilities on the New England Coastline, which is at times known for rough ocean conditions, and the Gulf of Mexico which at times has hurricane conditions (see proposed sites number 40 to 43). Therefore it appears appropriate to provide a detailed feasibility analysis of an off-shore facility.

*FERC LIST OF COMPREHENSIVE PLANS
REVISED AUGUST 2007*

Documents that satisfy the Commission's comprehensive plan criteria listed for the Columbia River under Oregon and Washington that are potentially relevant to the Lower Columbia River where Bradwood LNG Project transit corridor and facility site is located include:

- Northwest Power and Conservation Council. 2000. Columbia River Basin fish and wildlife program. Portland, Oregon. Council Document 2000-19.
- Northwest Power and Conservation Council. 2005. The Fifth Northwest electric power and conservation plan. Portland, Oregon. Council Document 2005-07.
- Northwest Power and Conservation Council. 1988. Protected areas amendments and response to comments. Council Document 88-22 (September 14, 1988). Portland, Oregon.
- Northwest Power and Conservation Council. 2003. Mainstem amendments to the Columbia River Basin fish and wildlife program. Portland, Oregon. Council Document 2003-11.
- Oregon Department of Energy. 1987. Oregon final summary report for the Pacific Northwest rivers study. Salem, Oregon. November 1987. 89 pp.
- Oregon Department of Environmental Quality. 1978. Statewide water quality management plan. Salem, Oregon. November 1978. Seven volumes.
- State of Oregon. State of Washington. State of Idaho. Confederated Tribes of the Warm Springs Reservation of Oregon. Confederated Tribes of the Umatilla Indian Reservation. Nez Perce Tribe. Confederated Tribes and Bands of the Yakima Indian Nation. 1987. Settlement Agreement pursuant to the

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September 1, 1983, Order of the U.S. District Court for the District of Oregon in Case No. 68-5113. Columbia River fish management plan. Portland, Oregon. November 1987. 61 pp. and tables.

State of Washington. State of Oregon. State of Idaho. Confederated Tribes of the Warm Springs Reservation of Oregon. Confederated Tribes of the Umatilla Indian Reservation. Nez Perce Tribe. Confederated Tribes and Bands of the Yakima Indian Nation. Settlement Agreement pursuant to the September 1, 1983, Order of the U.S. District Court for the District of Oregon in Case No. 68-513. Columbia River fish management plan. Portland, Oregon. November 1987.

Washington State Department of Ecology. 1982. Instream resource protection program for the main stem Columbia River in Washington State. Olympia, Washington.

Oregon Department of Fish and Wildlife. 1982. Comprehensive plan for production and management of Oregon's anadromous salmon and trout: Part I. General considerations. Portland, Oregon. June 1, 1982. 33 pp.

Oregon Department of Fish and Wildlife. 1982. Comprehensive plan for production and management of Oregon's anadromous salmon and trout: Part II. Cobo salmon plan. Portland, Oregon. June 1, 1982. 118 pp. and appendices.

Oregon Department of Fish and Wildlife. 1991. Comprehensive plan for production and management of Oregon's anadromous salmon and trout: Coastal Chinook salmon plan. Portland, Oregon. December 18, 1991. 62 pp.

Oregon Department of Fish and Wildlife. 1996. Species at risk: Sensitive, threatened, and endangered vertebrates of Oregon. Portland, Oregon. June 1996.

Oregon Department of Fish and Wildlife. 1997. Oregon coastal salmon restoration initiative (Oregon Plan). Roseburg, Oregon. March 1997. Five volumes.

Oregon Department of Fish and Wildlife. 1997. Oregon plan for salmon and watersheds. Salem, Oregon. December 1997.

Oregon Land Conservation and Development Commission. 1984. Oregon coastal management program. Salem, Oregon. 63 pp.

Oregon Water Resources Department. 1988. Oregon water laws. Salem, Oregon. 240 pp.

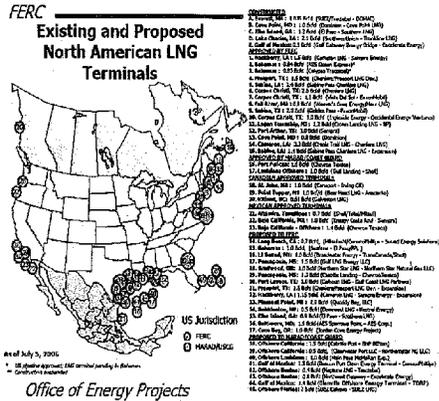
U.S. Fish and Wildlife Service. Undated. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C. 11 pp.

Interagency Committee for Outdoor Recreation. 2002. An assessment of outdoor recreation in Washington State: A State Comprehensive Outdoor Recreation Planning (SCORP) Document 2002-2007. Olympia, Washington. October 2002.

Lower Columbia Fish Recovery Board. 2004. Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan. Washington. December 15, 2004

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ESTUARY PROGRAMS

The United States Environmental Protection Agency National Estuary Programs was charged with developing and implementing a Comprehensive Conservation and Management Plan (CCMP) which establishes priorities for activities, research, and funding for the estuary. The CCMP serves as a blueprint to guide future decisions and actions and addresses a wide range of environmental protection issues including water quality, habitat, fish and wildlife, pathogens, land use, and introduced species to name a few. The CCMP is based on a scientific characterization of the estuary and is developed and approved by a broad-based coalition of stakeholders. (<http://www.epa.gov/owow/estuaries/ccmp/>) Lower Columbia CCMP, completed in 1999, contains 43 specific actions designed to protect and restore the lower Columbia River. The actions are broadly grouped into three categories - Actions 1-12 address habitat and land use; Actions 13-28 address education and management; Actions 29-43 address conventional and toxic pollutants. www.epa.gov/owow/estuaries/programs/cre.htm



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Source:

The FERC Permitting and Review Process

Medha Kochhar, Office of Energy Projects, Federal Energy Regulatory Commission

October 24, 2006; Atlantic States Marine Fisheries Commission 65th Annual Meeting

Geology

LA7-15

Page 4-3, Paragraph 2: As stated by Oregon DOGAMI, this is an erroneous technical statement because erosion features do not form deposits. The County is in agreement with DOGAMI that a technical review of the DEIS by URS and relevant consultants needs to be performed to ensure adequate integration of technical analyses and results.

LA7-16

Page 4-3, Paragraph 7, Second Sentence: The statement that most of the natural shoreline is resistant to erosion is unsubstantiated and needs scientific data to support. The DEIS discusses that there has been little change in the river's location over the last 6000 years. However, there is no study cited to support this. In addition, even a minute change in one reach of the river's course can affect County landowner's properties along the river. The DEIS needs a more complete study of the LNG traffic's affect all along the river channel due to channel modifications for the project.

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LA7-15

See our responses to comments SA1-4 and SA1-93.

LA7-16

As a clarification, the Columbia River navigation channel would not be modified for this project. See also our response to comment FA4-14.

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- LA7-17 | Page 4-5, Paragraph 6, Second Sentence: Since it is difficult to determine what additional impacts on shorelines the proposed LNG marine traffic would contribute, a baseline study and monitoring program should be implemented.
- LA7-18 | Page 4-9, Paragraph 2, Second Sentence: The DEIS states that debris flows would not reach the terminal site. However, there is no study or modeling shown to prove this point. This type of event should include adequate scientific data to support the conclusion the DEIS reached. A large landslide could potentially damage the terminal facilities and should be better researched to determine if such an event can or cannot occur.
- LA7-19 | Page 4-9, Paragraph 5: The DEIS states that FERC staff could not find any data on a large landslide that occurred in 1965 very near the Bradwood location which caused a tsunami on Puget Island. However, the Wahkiakum County Eagle, a newspaper out of Cathlamet, WA, dedicated an article with pictures to the event (W.C. Eagle, Thursday, Feb. 4, 1965). This is evidence of a lack of complete data on historic landslides in the terminal and pipeline areas. A more complete analysis needs to be performed.
- LA7-20 | Page 4-10, Figure 4.1.3-1: This map identifies only some of the known faults in the area. DOGAMI has stated that this map is incomplete and shows a lack of confidence in the scientific data. A new map showing all of the known faults is needed.
- LA7-21 | Page 4-11, Paragraph 5: This discussion does not include earthquakes with a magnitude between 8.0 and 8.5. In addition, the County agrees with DOGAMI that analysis of OBE-SSE between 8.0 and 8.5 is needed, along with an evaluation of earthquakes not located along the Cascadian subduction zone.
- LA7-22 | Page 4-12, Paragraph 3: In addition to the LNG tanks being supported on deep foundations, the other portions of the facility should be considered for ground improvements beyond vibroflotation and engineered fill.
- LA7-23 | Pages 4-12 and 4-13: The County would like to see that all of the FERC staff recommendations on these two pages be integrated into the final EIS. These include recommendations that the final engineering design needs to incorporate, including detailed seismic specifications and other measures to mitigate the impacts of seismic hazards.
- LA7-24 | Page 4-14, Paragraph 4: Some regional tsunami maps cited by the DEIS are over 10 years old. The terminal site and pipeline areas should be evaluated on a site-specific basis. The data should include the most up to date information available, including the tsunami research currently being performed by Oregon State University.
- LA7-25 | Page 4-20, Paragraph 5: 110 potential landslide areas have been identified along the proposed pipeline route. The DEIS states that these landslide areas may cause changes

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- LA7-17 | See our response to comment FA4-14.
- LA7-18 | See our response to comment SA1-100.
- LA7-19 | See our response to comment PM3-39.
- LA7-20 | See our response to comment SA1-98.
- LA7-21 | See our response to comment SA1-102.
- LA7-22 | See our response to comment SA1-105.
- LA7-23 | We have included and/or expanded and clarified the same recommendations for the final engineering design in the final EIS as were in the draft EIS. See for example the responses to comments SA1-4 and LA7-25 and related FERC staff-recommended conditions. Should the project be approved, these recommendations would become conditions of the authorization.
- LA7-24 | See our response to comment SA1-106.
- LA7-25 | Additional field mapping and subsurface investigations are required before the final pipeline design geotechnical report can be completed, and access is not available for all of the areas needing to be investigated. Proposed mitigation measures for geological hazards along the pipeline route would be subject to review by the Board of Consultants recommended in sections 4.1.3.3 and 4.1.4.3. The FERC staff has modified the draft EIS recommendation regarding completion of the geotechnical report on the pipeline route to clarify that all significant geological hazards must be further investigated and mitigated through final design measures. The recommendation specifies that NorthernStar must consult with and seek comments from the designated state coordinating agencies (WDE and ODE) prior to filing the report with FERC.

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LA7-25
cont'd in the pipeline route or other additional precautions. Alternate routes and precautions are suggested in Table 4.1.4-3 (Page 4-21), however, the DEIS fails to show the final pipeline route. This uncertainty causes great concern to area residents. The final EIS needs to include a final pipeline design geotechnical report showing the chosen pipeline route and its relation to the landslide areas.

Soils and Sediments

LA7-26 Page 4-28, Paragraphs 3 and 4: The environmental site assessment identified six Recognized Environmental Concerns (RECs) on the terminal site. These represent areas have the potential to contaminate the surrounding soils or may already be contributing to their contamination. FERC staff recommends a Contaminated Materials Management Plan (CMMP), if final design demonstrates the need. The County would like a CMMP developed no matter what the outcome. The potential for discovering contaminated soils during construction is high due to the RECs and therefore a CMMP should be included in the final EIS.

Water Resources

LA7-27 Page 4-52 and 4-54: Groundwater uses and Withdrawals. The County would like assurances that the water appropriation at the site will not cause injury to existing users or over-appropriation of the resource. Wells appropriating groundwater for ballast and cooling must comply with Oregon Water Resources Department's statutes and rules governing well construction. The County urges FERC to comply with OWRD's request to require a funding agreement for consultation with OWRD on water rights issues.

LA7-28 Page 4-60, Paragraph 4, second sentence: FERC staff recommend that NorthernStar prepare a CMMP (Contaminated Materials Management Plan) that would specify the procedures to identify, characterize and properly manage potentially contaminated materials, including groundwater, to be submitted to appropriate agencies for approval before construction. This recommendation needs to be incorporated into Section 5.1.3 (Conclusions and Recommendations for Aquatic Resources) and the results need to be disclosed prior to the development of the FEIS so FERC staff can evaluate the contaminant risk of project implementation.

LA7-29A Page 4-66, Paragraph 4, fourth sentence: The DEIS states that LNG vessels "have the potential to resuspend, and subsequently redeposit, sediments, resulting in impacts similar to dredging. Impacts associated with propeller wash would occur more frequently than dredging". The DEIS does not offer any mitigation for these impacts, or monitoring to ensure that ODEQ total maximum dissolved solids requirements are met. Instead, the DEIS states "we do not anticipate that propeller wash from LNG ships and tugs would result in a significant degradation of water quality in the Columbia River".

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LA7-26 The FERC staff's recommendation already would require a CMMP be filed with the Secretary prior to beginning construction regardless of the final design results. It is not necessary for the CMMP to be included in the final EIS.

LA7-27 It is not the FERC's practice to require funding agreements with state and local agencies as conditions in the EIS process. However, other regulatory bodies at the federal, state, and local levels could, if deemed necessary and appropriate, include such agreements as conditions to their permits. Groundwater would not be used for ballast or cooling water requirements at the wharf.

LA7-28 Section 5.0 is a summary of our findings and is restricted in length. Therefore, we are limited in the amount of information that can be included. A CMMP would not provide information on contaminant risk and it is not necessary that it be included in the final EIS.

LA7-29A Mitigation measures are not proposed for propeller wash because the impacts would be localized and minor. The wakes produced by an LNG carrier are only slightly larger than those of the large vessels currently using the Columbia River. In addition, the speed of LNG carriers on the Columbia River would be limited by the tethered tug, thus reducing the potential for shoreline erosion. Shoreline erosion is discussed further in section 4.1.2.3. The volume of LNG carrier traffic is not expected to increase during the life of the project.

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- LA7-29A
cont'd | The EIS should analyze and disclose the level of risk to localized water quality and the structural integrity of the many dikes in the area from the wake and subsequent shoreline erosion caused by LNG transit. The long-term impacts of LNG vessel wakes may be grossly underestimated because the DEIS leaves open the possibility for future increases in capacity and gas send-out, requiring more vessels transiting the waterway. Possible mitigation measures may include reduced speeds to reduce the wakes, installing erosion protection on dikes, and a monitoring plan for TMDL compliance.
- LA7-29B | Page 4-72, Paragraph 3, Sentence 3: The DEIS says that if the hydrostatic testing of the two storage tanks is done in conjunction with each other, then it would save 30 million gallons of water. The County requests that this be the only approved process in order to preserve the water resource.
- LA7-30 | Page 4-84, Paragraph 4: The DEIS claims that Northern Star's HDD contingency plan provides procedures and measures to mitigate an inadvertent release of drilling mud to the water body. Under Oregon's definition of mitigation there are not suitable mitigation measures contained in the contingency plan. The plan simply commits to stop the discharge of pollutants 30 minutes after detection followed by an inspection of biological resource damages. Feasible mitigation measures recommended for any significant discharge of drilling mud into a fish bearing stream should include: removal of the thicker deposits of drilling mud in stream bottom using sludge pumps and/or restoration of the stream system to mitigate for the lost productivity following a spill. Many streams support spawning salmonids (cutthroat trout, rainbow trout, salmon and steelhead) and the discharge of the drilling mud over spawning beds can suffocate eggs and larvae located within the gravel bed by entombment or sealing off intergravel flow (the drilling mud is used in the bore hole as a sealing compound). In the case of streams that support spawning of resident and anadromous salmonids the HDD crossing should be restricted to the dry season after all the early life stages have left the stream. . In addition, the contingency plan should include on-site quality control monitors/inspectors stationed on a real time basis some reasonable distance downstream from the bore hole. Given the geologic characteristics of the region drilling mud can erupt or vent to the stream bed some distance from the bore hole and the thick rain forest vegetation can restrict its detection.
- LA7-31 | Page 4-84, Paragraph 5: The DEIS states that geotechnical investigations were conducted at 13 proposed HDD water body crossing locations to determine suitability of the method. Table 4.3.2-3 of the DEIS, however, lists 19 potential HDD water body crossings. Results from existing geotechnical studies need to be disclosed in the EIS and geotechnical studies of the remaining sites need to be performed and reported to the appropriate agencies prior to the end of the DEIS comment period.

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- LA7-29B | NorthernStar intends to schedule construction activities so that water used to test the first tank can be reused to test the second tank. However, if construction does not proceed as planned and delays are experienced, the two tanks may need to be tested at different times.
- LA7-30 | NorthernStar's HDD contingency plan has been revised. Directions for accessing NorthernStar's HDD Contingency Plan (Frac-out Plan) via the eLibrary can be found in the response to comment FA3-13. See also our response to comment SA3-6.
- LA7-31 | The final geotechnical analysis for the HDD boreholes was not completed in time to be incorporated into the final EIS. Geotechnical investigations will be conducted at the remaining HDD locations when access is obtained and the results will be provided to the FERC and made available on the FERC's eLibrary. Also see the response to comment LA7-25.

Wetlands

LA7-32 | Page 4-91, Paragraph 3, sentence 7: The DEIS states that "if the LNG vapor cloud were to burn, wetland vegetation along the Columbia River could be damaged" and "with implementation of the mitigation measures described in the Coast Guard's WSR, a release would be highly unlikely". Prevention and low probability of occurrence are not mitigation according to Oregon State Law. Binding language should be inserted into the EIS that requires NorthernStar to produce bonding and insurance for cleanup and restoration of wetlands damaged by an accidental or intentional release of LNG or fuel oil.

Page 4-96, Paragraph 2: NorthernStar has drafted a Mitigation Plan to account for the permanent loss of some wetlands. The following are some of the identified deficiencies in the plan and recommended improvements:

LA7-33 |

- Some designated mitigation sites, such as Svensen Island, are already functioning as wetlands such that they do not qualify as mitigation (i.e. double counting). Substitute mitigation areas are needed for these sites.

LA7-34 |

- A mitigation area agreement needs to be developed for all of the mitigation areas that minimally includes:
 - An endowment to manage each of the areas in perpetuity in a manner that does not impact adjacent properties owned by citizens of the county; including proper management of wetland function and water supply, controlling noxious weed seed reservoirs, appropriate control of public access, activities and litter etc.
 - Paying all costs associated with start-up of the mitigation area, including acquisition, transfer of property, water rights, water delivery system and an initial monitoring program that verifying wetland functions will be effective going forward into the future.
 - Turning over the lands to a qualified land management agency
 - Providing the county with in lieu taxes if the lands are turned over to a management agency that is exempted from county taxes.

LA7-35 | 4-109, Paragraph 1, sentence 2: The DEIS states that "the wakes produced by an LNG ship are only slightly larger than those of the large vessels currently using the Columbia River. As such, we do not believe the LNG shipping activities would adversely affect Priority Habitats found along the lower Columbia River." This statement is entirely inadequate without quantification of the size of the wake behind an LNG ship. The EIS should analyze and quantify wake size and the risk of shoreline erosion, particularly as it relates to potential impacts on priority habitats and man-made structures like dikes.

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LA7-32 | See our response to comment FA2-35.

LA7-33 | See our response to comment FA3-3.

LA7-34 | See our response to comment LA7-11.

LA7-35 | See our response to comment FA4-14.

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LA7-35
cont'd

Possible mitigation measures may include reduced speeds to reduce the wakes, installing erosion protection on dikes, and performing periodic third-party habitat monitoring along the lower Columbia river.

LA7-36

4-109, Paragraph 2: The DEIS dismisses the consequences of a major LNG accident, intentional or accidental. LNG is said to burn back to the spill site, rather than outward towards shoreline habitats, but the DEIS acknowledges the possibility for ignition of LNG vapors to spark a forest fire. Prevention and low probability of occurrence are not mitigation according to Oregon State Law. Binding language should be inserted into the EIS that requires NorthernStar to produce bonding and insurance for the cleanup and restoration of natural and human landscapes damaged by a worst-case scenario accidental or intentional release of LNG or fuel oil. In addition, the EIS needs to discuss not just the possibility of LNG release, but a major spill of bunker fuel oil (used when approaching/maneuvering/departing the berth and, increasingly, the primary fuel in new LNG vessel designs). A fuel oil spill would be very difficult to contain in the dynamic estuary and the ecological and economic consequences would be vast and lasting. Bunker fuel oil is made up of compounds harmful to fish and wildlife and known to sometimes cause off-flavor in harvested fish species. The compounds can linger in the estuary for decades and cause temporary commercial fishing closures, long-term fishing restrictions, and a decrease in tourism. The potential for a fuel oil spill is not acknowledged in the DEIS and needs to be discussed and mitigated fully. In addition, the discussion should disclose if a spill is related to a terrorist incident would that be considered as an act of war under the insurance policy carried by the shipper? If so sufficient bonding should be in place to cover the clean up and damage compensation for a worst case scenario without any assistance from insurance. If the spill places more liability than assets held by the shipper the operator of the Bradwood facility should also have sufficient bonding to step into the shoes of the shipping company should it dissolve due to the incident.

LA7-37

LA7-38

LA7-39

Page 4-117, Paragraphs 3 – 5: The DEIS states that "reasonable" efforts will be made to obtain straw bales for erosion control that are free of noxious weeds and clean fill soil that is free of noxious weeds. Given the scale of this project, and the very large number of vehicles and people involved, there exists very significant potential for spreading invasive species that, in some parts of the estuary, have all but taken over native habitats. The EIS needs to erase the word *reasonable* and require the project to procure clean straw bales and fill so as to reduce the likelihood of the pipeline serving as a vector for the spread of noxious weeds. In the same vein, the DEIS should not say "when available, Oregon or Washington certified seed or equivalent will be used for revegetation". This should instead be a FERC condition of approval.

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LA7-36 See our response to comment LA3-55.

LA7-37 Potential impacts from an accidental spill or release of hazardous materials on aquatic resources and terrestrial wildlife are discussed in sections 4.5.2.1 and 4.5.2.3, respectively.

LA7-38 See our response to comment FA2-35.

LA7-39 See our response to comment FA3-10.

Wildlife and Aquatic Resources

- LA7-40 | Page 4-123, Paragraph 4, first sentence: The DEIS states that "LNG ships transiting the lower Columbia River over the operation life of the LNG terminal are likely to result in the stranding of some sub-yearling fish". Given that strandings will include ESA listed species of salmon, mitigation for strandings should be described. Instead the DEIS states that FERC staff will continue to study this issued and incorporate findings into the revised BA. These findings should be disclosed for FERC consideration prior to the construction of the FEIS, with strategies for lessening the impact, like slower transit to reduce wakes or increased juvenile salmon habitat mitigation.
- LA7-41 | 4-124, Paragraph 4, first sentence: The DEIS states that "fuel (e.g. diesel) used for vessel propulsion or auxiliary/emergency generators could potentially spill or leak", but claims that the double hull and shipboard SOPEP plans are sufficient to prevent and contain a fuel release. Given that LNG carriers have a heightened risk for incidents because of their status as a terrorist target, binding language should be inserted into the EIS that requires NorthernStar to produce bonding and insurance for the cleanup and restoration of natural and human landscapes damaged by a worst-case scenario accidental or intentional release of LNG or fuel oil. In addition, the EIS needs to discuss not just the possibility of LNG release, but a major spill of bunker fuel oil. Please see Specific Comments for page 4-109 for further discussion.
- LA7-42 | 4-128, Paragraph 4, first sentence: The DEIS states that adverse affects on Essential Fish Habitat (EFH) "would be limited to accidental spills or leaks of hazardous materials". It goes on to say that minimization of these impacts will be discussed in detail in section 4.5.2.1, but on page 4.148 there is only a brief mention of the ESC Plan being sufficient mitigation for these impacts. Specific measures from the plan need to be detailed in the FEIS, with mitlgation for unavoidable impacts.
- LA7-43 | 4-132, Paragraph 2: The DEIS is inadequate in describing mitigation of potential LNG spills on unique or sensitive wildlife habitats. Please see Specific Comments for pages 4-109 and 4-124 for further discussion.
- LA7-44 | 4-136, Paragraph 1, first sentence: NorthernStar's hydrodynamic modeling "do not show significant changes to the overall bed conditions in the Clifton Channel" according to the DEIS. Furthermore, for the fish in Clifton Channel, "there will be little impact". These impacts appear to be under-analyzed and underrepresented in the DEIS and need reconsidered by FERC over the long-term life of the project before FERC constructs the FEIS.

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- LA7-40 | Wake stranding is discussed in the response to comment FA2-19.
The adequacy of compensatory mitigation for impacts on federally listed species is discussed in the response to comment FA2-10.
- LA7-41 | See our response to comment FA4-18.
- LA7-42 | As described in section 2.4.1, NorthernStar's terminal ESC Plan includes BMPs recommended by the ODEQ's 2005 Erosion and Sediment Control Manual, which describes specifications for hazardous material transportation, handling, storage, spill prevention, and spill response. Because the EIS is a summary document, we feel that the analysis provided on the potential impacts from accidental spills or leaks of hazardous materials in section 4.5.2.1 (including implementation of the terminal ESC Plan) adequately meets NEPA requirements. However, a comprehensive analysis of potential impacts on EFH due to the Bradwood Landing Project will be included in the revised BA and EFH Assessment.
- LA7-43 | Section 4.5.1.3 has been revised to include additional discussion regarding potential impacts on unique or sensitive wildlife habitats.
- LA7-44 | See our response to comment IND82-5.

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LA7-45 4-141, last paragraph, first sentence: The DEIS states that "filling the log pond at the LNG terminal site would result in a permanent loss of suitable off-channel refugia" for federally listed ESA species. The applicant states that the footprint of the site could not be reduced further to avoid this significant impact, but the DEIS Alternatives Analysis has been cited by various state and federal agencies as insufficient. FERC should preferentially consider project sites that avoid direct impacts on ESA species or Essential Fisheries Habitat.

LA7-46 4-145, last paragraph, first sentence: FERC staff recommend that "prior to beginning initial site preparation at the LNG terminal, NorthernStar should prepare a plan, for the review and written approval of the Director of DDP, which outlines how NorthernStar would ensure that only LNG ships that are retrofitted to use the screened water supply system at the berth are allowed to unload cargo at the Bradwood Landing LNG terminal". Because the measures that NorthernStar has proposed to reduce the potential for introduction of invasive species through ballast water fouling, fish entrainment through ballast water / engine coolant intake, etc., hinge on the ability of a docking LNG vessel to use this system, FERC staff should be provided written documentation of how this guarantee can be made prior to the construction of the FEIS. The FERC permit should include a contracting restriction mitigation measure requiring Bradwood facility to only use LNG transport ships equipped with compatible water intake system for preventing entrainment (incentives are not suitable as there is no assurance they will produce the equipment). Monitoring and reporting for the permit should include the compliance of the contract requirement for shippers to have compatible equipment and effectiveness monitoring of the fish screen system.

Threatened and Endangered Species

LA7-47 Page 4-208, fourth paragraph: The DEIS states that LNG marine traffic would affect salmonids and/or their critical habitat through various activities, including: fish strandings, shoreline erosion, ship ballast and cooling water appropriations and discharges, accidental spill or leak of hazardous materials, and an accidental or intentional breach of an LNG ship. Potential impacts and mitigation are described in brief in Table 4.6.2-1, and in the previous section 4.5.1.1. Regarding wake stranding of small fish, the DEIS claims that strandings appear to be negligible in the lower part of the river where LNG vessels will be transiting. The DEIS also notes, however, that the Pearson et al. (2006) study that identifies contributing factors for wake stranding drew exclusively from studies of three locations upriver of the terminal site. Without additional research, and careful consultation with local experts like NMFS and FWS, FERC staff can not accurately assess the impact of LNG transit on juvenile salmonids in

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LA7-45 None of the alternative sites would avoid impacts on ESA species or EFH.

LA7-46 See our response to comment PM1-31.

LA7-47 Wake stranding is discussed in the response to comment FA2-19.

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this regard. Please see Specific Comments on pages 4-109, 4-145, 4-128 and 4-124, respectively, for comments and recommendations regarding shoreline erosion, ship ballast and cooling water appropriations and discharges, accidental spill or leak of hazardous materials, and an accidental or intentional breach of an LNG ship. All impacts regarding salmonids, or other threatened or endangered species, should be carefully considered within the context of ongoing Columbia River estuary restoration efforts and the FERC approved comprehensive plans listed above.

Page 4-235, third paragraph: The DEIS states that the Bradwood Landing LNG terminal would affect salmonids and/or their critical habitat through various activities, including: dredging, shoreline development, pile driving, log pond filling, bridge and railroad improvements, powerline construction, ship ballast and engine cooling water appropriations, hydrostatic testing and fire suppression activities, terminal lighting, accidental spills, routine discharge of condensate water, and operational acoustic effects. Given the diversity and magnitude of these impacts, their cumulative impact is very significant; please see Specific Comments page 4-96 for concerns regarding the inadequacy of mitigation. FERC staff should consider permanent impacts (e.g. log pond filling), and on-going maintenance impacts (e.g. turning basin dredging), to carry more weight than impacts that will be unnoticeable in a matter of years (e.g. pipeline construction or staging areas in non-forested areas). The relative significance of each impact, as well as its cumulative effect over the life of the project, should be disclosed in the FEIS. All impacts regarding salmonids, or other threatened or endangered species, should be carefully considered within the context of ongoing Columbia River estuary restoration efforts and the FERC approved comprehensive plans listed above.

Land Use, Recreation and Visual Resources

Page 4-289, Paragraph 4: This paragraph lists eight noise attenuation measures that NorthernStar would consider to reduce the noise in the nearby noise-sensitive areas (NSAs). The County requests that all of these measures be employed during the construction and operating phases of the project. In addition, the final EIS should demonstrate why it is necessary for the dredging operations to occur 24 hours a day, rather than restricting that activity to daylight hours. If the dredging operations exceed regulatory noise limits, then there should be adequate demonstration of the reasons why those operations should not be limited to daylight hours.

Page 4-294, Paragraph 6: The dredging of the turning basin will interfere with recreational use of the Columbia River. The County recommends that the dredging operations work to minimize its obstruction to navigation on Clifton channel and not allow complete blockage of the channel for extended periods of time.

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LA7-48

LA7-48

We agree that long-term and permanent impacts are more significant than short-term impacts. Therefore, portions of the EIS describing potential impacts on various resources (e.g., geology, wetlands, threatened and endangered species) distinguish between temporary and permanent impacts. A description of ongoing recovery efforts will be included in the environmental baseline portion of the revised BA and EFH Assessment; however, because the EIS is a summary document, we do not believe that this level of detail is appropriate.

LA7-49

LA7-49

Noise mitigation would be completed as described in section 4.10.2 of the EIS. As indicated in the EIS, dredging may be conducted up to 24 hours per day due to the time constraints placed on the project over which dredging may occur. We are recommending a noise mitigation plan to minimize dredging noise impacts during construction of the facility.

LA7-50

LA7-50

Dredging activities would be conducted in accordance with applicable laws and regulations under the jurisdiction of the COE, the ODSL, and the ODWR.

Socioeconomics

LA7-51 Page 4-346, Paragraph 2: The DEIS states that operation of the terminal itself would not affect commercial or recreational uses of the Columbia River. This statement is incorrect. The DEIS acknowledges that cruise ships reach Astoria, however, it fails to reflect ongoing cruise ship operations that go from Portland to Astoria. These ships pass right by the terminal and would be impacted by the LNG ships that they would have to pass. These encounters could pose significant economic and scheduling issues. Two cruise lines that should be included in the final EIS are the Majestic America Line and the Cruise West division of West Travel, Inc. In addition, there are various other cruise ships that go by the Bradwood terminal location and additional research into these other operations is needed.

LA7-52 Page 4-350, Paragraph 2: The DEIS references the INGAA Foundation Natural Gas Pipeline Impact Study (INGAA, 2004) and states that the study found that there was not a significant impact on the sales price of properties located along natural gas pipelines. In addition, the DEIS references a Whatcom County, Washington study as well. The County would like the final EIS to reflect exactly what questions the studies were asking as well as a review of all other studies available that reference this subject.

Cultural Resources

LA7-53 Page 4-366, Paragraph 2: To ensure responsibilities under the National Historic Preservation Act, the County requests that all of the recommendations listed by FERC staff be followed and that consultation with the State Historic Preservation Office continue throughout the project construction phase.

Air Quality and Noise

Noise: Please refer to the comments above on Page 289, paragraph 4 for comments on noise.

LA7-54 Page 4-383, Paragraph 2: In addition to the measures proposed here to limit the tailpipe emissions from vehicle traffic, the County also would like to see the following measures added to the project: installing electrification at the dock to reduce ship hotelling emissions, switching to cleaner fuels on all diesel engines, and installing retrofit devices on all diesel engines.

Conclusions and Recommendations

LA7-55 Page 5.1, last sentence: The DEIS geology analysis for the terminal facilities is not complete because it does not disclose the extent of the seismic hazard and specify mitigation for the poor foundation conditions at the site. It has been determined that a

Local Agencies

LA7-51 See our response to comment PM2-17.

LA7-52 We believe the discussion in section 4.8.3.3 adequately summarizes the studies regarding the potential for natural gas pipelines to affect property values.

LA7-53 To ensure compliance with the NHPA, sections 4.9.4 and 5.2 include our recommended condition that NorthernStar be required to provide all cultural resources investigation reports and plans to the Oregon and Washington SHPOs and file comments from the SHPOs with the Secretary before construction of its proposed facilities. If cultural resources are discovered during construction, those resources would be handled according to the Unanticipated Discovery Plan discussed in section 4.9.2.

LA7-54 See our response to comment SA1-87.

LA7-55 See our responses to comments SA1-4, SA1-103, SA1-4, and SA1-105.

K-600

K-601

- LA7-55 cont'd | number of additional detailed seismic specifications and mitigation measures are necessary and they are not yet developed and presented for public review.
- LA7-56 | Page 5.2, First sentence: The DEIS analysis for the pipeline route is not complete as it as it has been determined that pipeline route through landslide areas may be relocated to undisclosed/undetermined locations or mitigated with other measures. The more important open questions for the relocated segments of the route include the geologic, cultural and biological conditions. There are also known landslide sites along the pipeline route that are not identified as such in the DEIS; such as the 1965 slide near Puget Island. Any landslide sites not yet identified in the document need to be disclosed and addressed with relocation or other mitigation measures.
- LA7-57 | Page 5.2, Paragraph 4, first sentence: The DEIS concludes LNG marine traffic may contribute to shoreline erosion along the waterway and that this impact will be further studied. The document is incomplete as it does not make a determination if the impact is significant and if mitigation measures are necessary. The document should disclose that there are numerous dikes in the Lower Columbia where the LNG ships will transit that protect homes and property. Many of these dikes are in very poor condition and do not meet current standards making them very vulnerable to shore erosion. Dike districts lack the funding to improve the dikes. The DEIS should analyze and disclose the level of risk to the dikes face from the wake erosion and develop mitigation measures. Possible measures may include reduced speeds to reduce the wakes, installing erosion protection on dikes and purchase of properties on the interior of high risk dikes to limit property damage associated with dike failure. See Specific Comments pages 4-66, 4-109 and 4-123 for further discussion.
- LA7-58 | Page 5-4, Paragraph 2, Sentence 4: The DEIS does not disclose how the proposed terminal would only accept LNG ships that are equipped with the water intake system to prevent entrainment of juvenile fish into the ship ballast water. See Specific Comment 4-145 for further discussion.
- LA7-59 | Page 5-4, Paragraph 3, Sentence 3: The DEIS claims that Northern Star's HDD contingency plan provides procedures and measures to mitigate an inadvertent release of drilling mud to the water body. See Specific Comments page 4-84 for further discussion.
- LA7-60 | Page 5-5, Paragraph 2, First Sentence: NorthernStar has drafted a Mitigation Plan to account for the permanent loss of some wetlands. See Specific Comments page 4-96 for further discussion.

Local Agencies

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- LA7-56 | Minor adjustments may be made to the pipeline route prior to the start of construction and even during construction for various reasons. See also our responses to comments LA7-25 and PM3-39.
- LA7-57 | See our response to comment FA4-14.
- LA7-58 | See our response to comment PM1-31.
- LA7-59 | See our response to comment LA7-30.
- LA7-60 | See our responses to comments FA3-3 and LA7-11.

K-602

- LA7-61 | Page 5-5, Paragraph 2, Last Sentence: Clatsop County requests to be included among the applicable agencies referred to here that will participate in finalizing the Bradwood compensatory mitigation package. Also the County is interested in reviewing any mitigation agreements that cover the mitigation package.
- LA7-62A | Page 5-5, Last Paragraph, Last Sentence: Concludes that: "Typically, mobile species would relocate to similar adjacent habitat during construction, and return after the area is restored." In practice this assumption is not correct necessitating a mitigation plan. Fundamentally, if there is similar habitat adjacent to the disturbance area it will already support a population of species like that forced to relocate; meaning it typically lack sufficient carrying capacity to support more individuals of that species. The relocated individuals are subjected to the rigors of competition and predation and it is unlikely they would survive for years while the disturbed area grows back to the status of the original habitat. In the case where habitat is being converted from one type to another the relocated species will not find suitable habitat to return to because of the conversion. We recommend eliminating this assumption from the conclusion and compensate for all habitat alteration associated with the proposed project (without accounting for relocation and survival). The mitigation plan should provide sufficiently high ratios of replacement lands that compensate for the lost use while the reseeded habitat grows back.
- LA7-62B | Page 5-6, Paragraph 6: The paragraph on Essential Fish Habitat needs to add a fuel oil spill as a potential impact and detail appropriate mitigation. See Specific Comments page 4-109 for further discussion.
- LA7-63 | Page 5-7, Paragraph 4, Last Sentence: The DEIS is not complete as it does not disclose a completed Water body Mitigation Plan for public review. We are interested in reviewing the level of protection provided in the more important anadromous streams that are included in the Comprehensive Plans for the Columbia River identified under Section 10 of the Federal Power Act. The DEIS should also mention that pipeline crossings and failed underground borings can produce excessive turbidity in the streams that can interfere with angling activity.
- LA7-64 | Page 5-7, Paragraph 6, Third Last Sentence: For the conclusion that the mitigation package represents values equal or greater than habitat permanently lost it will be necessary to add mitigation areas to substitute for Svensen Island which is already undergoing restoration via a natural breach.
- LA7-65 | Page 5-7, Paragraph 6, Last Sentence: Although not included as part of the project's compensatory mitigation, NorthernStar has also developed a voluntary SEI that would

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- LA7-61 | See our response to comment LA7-11.
- LA7-62a | The reference to NorthernStar's Compensatory Mitigation Plan has been removed from this paragraph. As described in section 4.5.2.3, animals displaced by construction activities may relocate into similar habitats nearby; however, the lack of adequate territorial space could force some animals into suboptimal habitats. The influx and increased density of animals in some undisturbed areas caused by these dislocations could increase inter- and intra-specific competition and also reduce the reproductive success of animals that are not displaced by construction. The loss of these individuals could result in a decrease in the food stock available for predators of these species. The adequacy of NorthernStar's Compensatory Mitigation Plan is discussed in the response to comment FA2-10.
- LA7-62b | Potential impacts on EFH due to an accidental spill or leak of hazardous materials are discussed in the environmental analysis portion of the final EIS, as appropriate. However, because discussion within section 5 of the EIS is limited to a summary of the FERC staff's environmental analysis, it is not the appropriate portion of the EIS to address detailed comments on potential impacts on EFH. See also our responses to comments FA4-13, LA7-36, LA7-37, and LA7-38.
- LA7-63 | NorthernStar has filed its Waterbody and Wetland Construction and Mitigation Procedures Plan with the FERC. Directions for accessing NorthernStar's Waterbody and Wetland Construction and Mitigation Procedures Plan via the eLibrary can be found in the response to comment FA2-17. Potential impacts on water quality and water resources due to waterbody crossings are discussed in sections 4.3.2.4 and 4.5.3.1, respectively.
- LA7-64 | See our response to comment FA3-3.
- LA7-65 | See our response to comment FA4-12.

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- LA7-65 cont'd contribute about \$50 million over the life of the project to the recovery of salmon in the Lower Columbia River ecosystem. We are concerned that the funding may be somewhat illusionary because this is discretionary funding that does not include any criteria for how or when and under what conditions it can be spent. Because it is not a requirement there will be little incentive to spend this much money on a timely basis. It is difficult to put restoration projects together with multiple funding sources without clear understandings conditions the funding is available. Furthermore, we are concerned that the funding offer may be transitory because NorthernStar could very well turn over the Bradwood facility to another operator or successor not involved in any way with the voluntary offer. We recommend the best use of the funding in the SEI is to fully apply it to mandatory mitigation and monitoring programs associated with the project which are in several instances deficient and need a larger funding commitment.
- LA7-66 Page 5-9, Paragraph 1 Sentence 1: Recommend changing sentence to: The Bradwood Landing Project would have impacts on commercial fishing and recreational users of the Columbia River.
- LA7-67 Page 5-9, Paragraph 1 Sentence 3: Add waterfowl hunters on islands in the Columbia River to the list of boaters that would have to move out of the way of LNG marine traffic heading upriver to the LNG terminal to comply with the Coast Guard moving 500-yard safety and security zone around LNG ships. There is a National Wildlife Refuge in the lower Columbia River that includes hunting areas along with islands outside the refuge.
- LA7-68 Page 5-9, Paragraph 1, Sentence 4: Qualify the sentence as follows: Jet-skiers, wind-surfers, kayakers, and canoeists typically stay in shallow water outside of the navigation channel; however much of the shallow water areas outside of the navigation channel is within the moving 500-yard safety and security zone around LNG ships along the 39 mile reach of river. In some cases at low tide there is no where to go outside of the moving 500 yd exclusion zone due to sand bars that are impassable by boat. The document should describe how the 500 yard safety and exclusion zone will work under heavy fog or storm conditions when poor visibility prevents recognition of an LNG vessel. Will there be a sound used to announce the position of the vessel? If so the document should analyze the noise impact.
- LA7-69 Page 5-9, Paragraph 1, after last sentence add: For many communities, estuaries are the focal point of tourist-related activities and this is the case with Astoria, Warrington, Ilwaco and Cathlamet. As such the view shed is just as important for visitors as residents.

Local Agencies

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- LA7-66 We have revised relevant portions of the EIS. While the project may affect commercial and recreational fishing and other river users, those impacts would be brief and not significant.
- LA7-67 It is implicit that all boaters, including hunters, would have to move out of the way of LNG carriers in transit in the waterway to the proposed Bradwood Landing LNG terminal. Section 4.7.1.4 also addresses use of National Wildlife Refuges along the waterway,
- LA7-68 As discussed in section 4.8.1.7, the Coast Guard's moving safety/security and moored vessel security zones would not be treated as absolute exclusion zones that would preclude all other vessel movements. Rather, other vessels may be allowed to transit through the moving safety/security and moored vessel security zones with the permission of the COTP. The expectation is that the COTP's Representative would work with the pilots and patrol assets to control traffic, and would routinely allow vessels to transit the safety/security zone based on a case-by-case assessment conducted on scene. In the case of fog or other low-visibility situations, the security escorts would likely approach recreational river users and communicate verbally regarding the presence of the LNG carrier and security zone. Final details regarding the security zone would be included in the Vessel Traffic Management Plan.
- LA7-69 The suggested text has been added to section 5.1.7.

LA7-69
cont'd

The presence of LNG carriers and their heavily armed escort vessels have a high potential to create an unwelcome or dangerous appearance that is not conducive to tourists or fisherman choosing to recreate in this area.

Page 5-12, Last Paragraph in Socioeconomics Section, First Sentence: Change as indicated in underlined segment: The LNG ships transiting the river during the tourist season have the potential to adversely affect businesses related to tourism. Then add the following: "Perhaps most important, the presence of LNG carriers and their heavily armed escort vessels have a high potential to create an unwelcome or dangerous appearance that is not conducive to tourists or fisherman choosing to recreate in this area. For many communities, estuaries are the focal point of tourist-related activities and this is the case with Astoria, Warrington, Illwaco and Cathlamet. If these visitors choose other coastal/estuary recreation opportunities, millions of dollars spent locally on retail, hotel and guide services would be lost over the long term." The DEIS should thoroughly disclose the regional economic value of tourism and estimate the range of that economic value that could be potentially lost over the long-term, including, but not limited to, the substantial tourism associated recreational fishing, visiting cruise ships, the Lewis and Clark National Heritage Park, and the proposed Columbia Pacific Heritage Area. Also see comment for Page 5-6.

LA7-70

Section 5.2: Please consider incorporating into this section the mitigation recommendations contained in this comment letter for the waterway, site and pipeline. Thank you for your considerations.

Local Agencies

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LA7-70

The mitigation recommendations made by the Columbia River Estuary Study Taskforce on behalf of Clatsop County will be incorporated into the environmental analysis portion of the final EIS, as appropriate. However, because discussion within section 5 of the EIS is limited to a summary of the FERC staff's environmental analysis, it is not the appropriate part of the EIS to address detailed comments on NorthernStar's proposed mitigation for project impacts.

K-604



December 24, 2007

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

Dear Ms. Bose:

Below are the comments of the Port of Vancouver, USA regarding the draft Environmental Impact Statement (EIS) concerning the Bradwood Landing Project proposed by Bradwood Landing LLC and NorthernStar Energy LLC (collectively referred to as NorthernStar).

Port of Vancouver, USA Overview

The Port of Vancouver, USA, is a multi-purpose port authority located in Vancouver, Washington along the banks of the Columbia River and is a critical hub of marine, rail, highway and air cargo transportation for regional, coastal and inland consumers.

Located at the natural transportation hub of the Pacific Northwest on the Columbia/Snake River System, the Port of Vancouver, USA, is an ideal transfer point for cargoes moving to and from the Pacific Rim and the world. Annually, the Port handles over 500 ocean-going vessels, as well as river barges, with a total cargo volume exceeding 5 million metric tons.

The Port is adjacent to north/south and east/west national highways and offers on-site connection to river grade rail traveling between Canada and Mexico and east to Chicago

The Port of Vancouver, USA, has handled a variety of bulk and break bulk cargoes since 1912.

Comments on the Draft EIS:

Vessel traffic destined to upriver ports is critical to the local, regional and national economies and must be allowed to transit the river without additional

Local Agencies

Port of Vancouver, USA Letter to the Federal Energy Regulatory Commission, dated December 24, 2007, SUBJECT: Comments on Draft EIS for the Bradwood Landing Project

constraints and costs. Adding LNG vessels to the river will add additional constraints and potential delays if not properly managed.

- LA8-1 a. The EIS indicates that impacts to other commercial traffic would be minimal unless there was an LNG release into the waterway. Annually, approximately 125 LNG vessels would be expected to travel to the LNG facility. While navigating in the waterway, the LNG vessels would have a 500 foot safety zone. Vessels could not enter the zone without receiving permission from the US Coast Guard Captain of the Port (COTP). According to the COTP letter to the Federal Energy Regularly Commission (FERC) in February 2007, the COTP's representative will, in concert with the river pilots, routinely allow vessels to transit the zone *based on case-by-case assessment conducted on-scene.* (emphasis added)

Concern: Although nice to read, carriers and ports upriver from Bradwood have no assurance that this initial procedure will continue to be followed when LNG vessels actually start transiting the river. No additional information on how the assessments will be conducted (policies, etc) have been made public. For example, what happens to vessel navigation when the region is in Maritime Security (MARSEC) levels two or three?

- LA8-2 b. Regarding vessel meeting situations, the EIS outlines four passing zones along the transit route that would allow two-way traffic. Although the EIS mentions that these traffic patterns are expected to resemble those already in use by deep-draft traffic today, it also mentions that these transits would require careful traffic planning – something already in use today.

Concern: What constitutes careful traffic planning with LNG vessels? How much additional pilot man hours would be required to additionally plan and manage LNG transits? Will those additional costs be solely born by the LNG vessels? Does careful traffic planning also mean that a federal administered vessel traffic system (VTS) would be required to plan and manage vessels traffic on the Columbia River?

- LA8-3 c. The EIS mentions that a marginal increase in ship traffic could occasionally increase the wait time for ships in Astoria. The study indicates that ships may have to wait for pilots. The COTP letter to FERC indicates that *at least initially (first 6 months)*, there will be two pilots on LNG vessels. Additionally, before LNG vessel arrival (at least 24 hours before), federal authorities, and others (including bar and river pilots) will meet to coordinate inbound and outbound transit details.

Concern: Who pays for the extra pilot man-hours required? Making vessels wait for pilots is not acceptable. Current vessel charter rates

Local Agencies

- LA8-1 The procedure described is not an "initial" procedure but the procedure expected for the operation of the project. Under higher security levels, all ships would be subject to tighter security measures and a MARSEC level three could shut down the river for all vessels.

- LA8-2 As part of the WSR requirements, an expanded vessel traffic information system would be implemented. We anticipate the cost of this system would be included in NorthernStar's Cost Sharing Plan.

- LA8-3 Scheduling of the pilots and the potential for increased costs due to having to wait for pilots would need to be worked out between NorthernStar and the other river users as the vessel traffic management system is developed.

K-607

Port of Vancouver, USA Letter to the Federal Energy Regulatory Commission, dated December 24, 2007, SUBJECT: Comments on Draft EIS for the Bradwood Landing Project

LA8-3 | average \$2300 per hour. In the worst case, a vessel waiting up to 12 hours for
cont'd | the next favorable tide would lose \$27,600. Additionally, liner vessels would
lose at least a half day's travel time – putting them behind in their schedule.
This could result in carriers omitting a Columbia River port call due to
potential delays. At the very least, the vessel would have to increase speed
(with increased fuel costs) to meet its schedule.

LA8-4 | d. The EIS mentions pilot savings for other vessels traveling the river
because Northern Star would contribute approximately 1.6 million in fixed
costs. This is new information not previously known. More information would
be needed to evaluate this claim. Northern Star also claims that additional
pilots would not be needed for LNG vessel traffic – something not confirmed by
the pilot associations.

Summary:

The Port of Vancouver, USA concerns are centered around two areas:
1) Unhindered navigation for vessels transiting to upriver ports and 2)
Additional costs (particularly pilot labor costs) that the maritime transportation
sector may have to assume. The draft EIS does not adequately address these
issues at this time.

PORT OF VANCOUVER USA



Michael J. Schiller
Operations Manager
Port of Vancouver, USA

Local Agencies

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LA8-4 We have confirmed with Paul Amos, President of the Columbia River Pilots, NorthernStar's statement that additional pilots would not necessarily be required for the LNG carriers. Mr. Amos states that the pilots regularly experience fluctuations per year of larger numbers of vessels without needing to hire additional pilots. They generally look at the previous year and new commodities traveling the river to determine if additional pilots would be needed.

Mr. Amos also clarified that an increase in pilots does not increase costs to anyone else, because the ship's tariff pays for the pilots.

December 28, 2007

2007 DEC 28 P 2:22

ORIGINAL PORT OF PORTLAND

Marine Division
121 NW Everett Portland OR 97209
Box 3529 Portland OR 97208
T 503 944 7000 F 503 944 7250

FERC
Office of the Secretary
Washington, DC 20426

RE: BRADWOOD LANDING DOCKET # CP06-365-000
SUBJECT: VESSEL TRAFFIC MANAGEMENT COORDINATION

LA9-1 The Bradwood Landing Draft Environmental Impact Statement Executive Summary States on Page ES-4:

"About 125 ships per year would enter and travel along the Columbia River to deliver cargo to the LNG terminal, resulting in about a 7 percent increase in traffic. LNG marine traffic in the waterway may have some minor impacts on shoreline erosion; however, we do not believe that commercial or recreational river users would be adversely affected."

The Port of Portland believes that, as a community of navigation system users on the Lower Columbia River, we have developed a safe, robust, and flexible navigation infrastructure system over many years. This navigation system is in place and benefits all Oregon and Washington shippers and a growing economy based on trade and waterborne transportation.

Our river system can handle additional vessel traffic, and we are continuously improving its capacity to handle the growing volume of trade handled by the Columbia/Snake River system. However, we would be extremely concerned about the impact of new facilities in the Lower Columbia River should their presence place significant restrictions on existing vessel traffic that must transit past the facility and/or utilize the same navigation channel.

It is our understanding, based on the Waterways Suitability Report, that vessel traffic management measures will be required and that vessels' transits (of LNG vessels) will be coordinated to minimize conflicts with other deep-draft vessels, recreational boaters, seasonal fisheries, and other marine events. It is essential for the continuity of existing commercial navigation and the existing maritime investments on the entire river that vessels destined for or departing from locations upstream of the proposed Bradwood facility be able to utilize the channel fully without the creation of a de-facto one-way channel. This will require safe passing zones and implementation of multiple improvements to the navigation system as identified in the WSR report.

Local Agencies

LA9-1 The safety/security zone would establish the Coast Guard's authority in the area surrounding the LNG vessel to allow control of the movements of vessels in the security zone area. With expansion of the vessel traffic information system, we do not anticipate significant impacts on shipping traffic during operation of the project. The WSA assumed the larger LNG vessels would be in use and the project would be authorized for 125 LNG vessel round-trips per year.

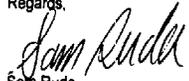
K-608

FERC - Office of the Secretary
Page 2
December 26, 2007

LA9-1
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It is our specific concern that additional vessel traffic restrictions may be identified in the future based on size of LNG vessels, frequency of LNG vessel calls, or other factors as yet not determined. If this were to happen, it is the Port of Portland's position that liner services, such as the automobile and container carriers which are on fixed schedules and/or tight rotations, need to be provided priority in vessel passage and not unduly restricted by LNG vessel traffic.

Regards,



Sam Ruda
Director, Marine & Industrial Development

Local Agencies

Local Agencies

ORIGINAL

2007 DEC 26 P 4:42

PORT OF PORTLAND

Marine Division
121 NW Everett Portland OR 97209
Box 3528 Portland OR 97208
T 503 944 7000 F 503 844 7250

December 21, 2007

FERC
Office of the Secretary
Washington DC 20426

RE: Bradwood Landing Docket #CP06-365-000

LA10-1

This letter is in regard to the application by Northern Star LLC and Bradwood Landing LLC to establish an LNG facility on the Columbia River. As a sponsor of the Columbia River Channel Improvement Project, we wish to ensure that the proposed facility will not interfere or impede established or projected commercial vessel traffic in the river.

Accordingly, as a condition of granting a permit for construction and operation of any LNG terminal on the Columbia River, we respectfully request that FERC require Northern Star to analyze and address the following:

Will the advent of LNG on the Columbia River, as currently proposed, cause commercial or vessel safety impacts that result in the need for increased and/or improved ship anchorages along the river from its mouth to the Portland/Vancouver area?

If thorough study indicates that the arrival of LNG on the river will in fact result in such a need, the establishment of such new anchorages by Northern Star should be made a condition of FERC's siting approval. We also respectfully request the results of this analysis be publicly available for review.

Regards,



Sam Ruda,
Director Marine & Industrial Development

LA10-1

Increased or improved ship anchorages would not be necessary. With careful traffic management, prearrangement of meeting locations in the four established passing zones, and an expanded vessel traffic information system, traffic delays are expected to be negligible.

K-610

CP06-365 CP06-366

Clatsop County



November 12, 2007

Paul Friedman, Manager
Bradwood Landing Project
Office of Energy Projects
Federal Energy Regulatory Commission
Washington, DC 20426

800 Exchange St., Suite 310
Astoria, Oregon 97103

SUBJECT: Conditions of Approval in Clatsop County's Review of Application from Bradwood Landing, LLC, for Land-Use Permits for LNG Marine Terminal at Bradwood, Oregon

Dear Mr. Friedman:

Clatsop County expects to complete its review of the local land-use permit application from Bradwood Landing soon. We conducted two public hearings before our planning commission in July and one public hearing before our Board of County Commissioners on October 22, 2007. The Board of Commissioners will hold another hearing on November 19, 2007, and is expected to reach a decision on the application a few weeks after that. If the board decides to approve the application, the commissioners are likely to adopt conditions of approval regarding critical issues such as emergency services, road access, plant retirement, wetland mitigation, and habitat restoration.

Board of
County Commissioners

Phone (503) 325-1000
Fax (503) 325-8325

At the board's October 22, 2007, hearing we were surprised to hear testimony suggesting that FERC might be able to preempt overrule such local conditions of approval. This is contrary to our understanding of federal law on consistency with the Coastal Zone Management Act and of the Energy Policy Act as well. We therefore ask for your views on this crucial question: *Does FERC have authority to invalidate, waive or modify local land use regulations or local conditions of approval adopted pursuant to the Coastal Zone Management Act, and if so, what criteria does FERC employ in deciding whether to take such action?*

As you know, most of Clatsop County, including the Bradwood site, is in Oregon's coastal zone. The county's comprehensive plan and land-use regulations have been acknowledged by the state's Land Conservation and Development Commission to be the controlling documents for all land use decisions in the coastal zone and for implementing the state's federally approved coastal management plan. We understand the federal consistency

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LA11-1

Local Agencies

LA11-1

On April 4, 2008, Mark Robinson, Director of the FERC's OEP, wrote a reply to this letter from Mr. Derickson (see accession number 20080404-3020). While the EAct 2005 gave the FERC the authority to site onshore LNG terminals, it also stated that the rights of the states under the CZMA would not be affected. The EIS addresses local land use zoning in section 4.7. The EIS acknowledges that NorthernStar has not yet received a determination that its project is consistent with the CMP and recommends that prior to construction, NorthernStar must file documentation from the ODLCD that the project is consistent with the Oregon CMP.

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LA11-1
cont'd

provisions of the CZMA to require that any federal action occurring in Oregon's coastal zone that would affect coastal land or water uses or natural resources must be consistent with Oregon's coastal management program and with the local plans and land use regulations that implement it. We further understand the federal consistency provisions to extend to all local decisions that apply the local plans and land use regulations that implement Oregon's coastal management program. We therefore conclude that (a) any decision on Bradwood by Clatsop County to deny, continue, approve, or approve with conditions will be subject to federal consistency provisions of the CZMA, and (b) FERC has no authority to waive or modify any such decision.

We appreciate your attention to this important question and look forward to hearing from you at your earliest convenience.

Sincerely,



Scott Derickson, Clatsop County Manager
800 Exchange Street, Suite 410
Astoria, OR 97103

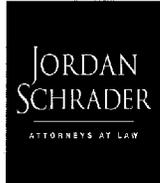
Copies to:

Clatsop County Board of Commissioners
Dale Blanton, Oregon Department of Land Conservation and Development
Adam Bless, Oregon Department of Energy

K-612

Local Agencies

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JORDAN SCHRADER RAMIS PC

February 22, 2008

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

Re: **Bradwood Landing LLC, Docket Nos. CP06-365-000, CP06-366-000,
CP06-376-000, CP06-377-000**
Our File No. 44548-35140

Dear Secretary Bose:

This office represents Clatsop County, Oregon (the "County"), in the above referenced proceedings regarding the Bradwood Landing LNG ("Bradwood") facility and associated pipeline. As the FERC decision-making process nears completion, the County Board of Commissioners remains concerned over the status of local conditions of approval and the adequacy of environmental and safety review. The purpose of this letter is to outline for FERC various questions proposed by the Board of County Commissioners regarding the remainder of the FERC process.

E. ANDREW JORDAN

Admitted in:
Oregon

Direct Dial
(503) 598-5511

E-mail
andy.jordan@jordschrader.com

After Bradwood submitted its formal application to FERC, a debate arose regarding the breadth of FERC's jurisdiction over the project. The County initially believed that FERC had exclusive jurisdiction and that the Oregon Department of Energy would review the proposal on behalf of the state and affected local governments. After several months of discussion, however, it was determined by all affected agencies, and at the County's insistence, that Bradwood should seek County land use approval. Bradwood consented to this request and submitted a consolidated land use application to the County for approval of a wide variety of plan and zone changes, variances, and permits to assure compatibility of the proposal with County land use policies and regulations.

The County held two days of hearings before the County Planning Commission and two days of hearings before the Board of Commissioners. The Board of Commissioners ultimately accepted the Planning Commission's recommendation to approve the project subject to a variety of conditions regarding road improvements, dredging, mitigation of environmental damage, and safety, among others.



K-613

K-614

JORDAN SCHRADER, PC
ATTORNEYS AT LAW

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Contemporaneous with the local land use process, the County contracted with Columbia River Estuary Study Taskforce ("CREST") to prepare comments on the Draft Environmental Impact Statement ("DEIS") issued on August 17, 2007. Those comments were submitted to FERC on December 21, 2007, along with comments by other affected parties. It is the County's understanding that FERC is currently analyzing the comments received in response to the DEIS and preparing a Final EIS that will address the comments filed by the affected parties.

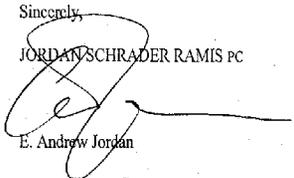
Based on the above background, the County has the following questions:

- LA12-1 (1) In what manner is FERC going to address the questions, concerns, and comments filed by state, federal, and local agencies in response to the DEIS?
- LA12-2 (2) Does a conflict of interest arise when FERC requests that a consultant hired by Bradwood complete a study in order to respond to a comment filed in response to the DEIS? If so, how does FERC manage such a conflict?
- LA12-3 (3) If FERC ultimately approves the Bradwood application, will FERC require Bradwood to satisfy the conditions placed upon local approvals by local governmental bodies having jurisdiction over such approvals?

Once a Final EIS is issued, it is the County's understanding that FERC will prepare an order approving or denying the Bradwood application. Because the County represents the local public interest in this proceeding, it is important that the above concerns be addressed so that the County can take whatever action it deems necessary to ensure the environment and public safety are adequately protected.

Sincerely,

JORDAN SCHRADER RAMIS PC


E. Andrew Jordan

cc: Clatsop County

Local Agencies

LA12-1 On April 4, 2008, Mark Robinson, Director of the FERC's OEP, wrote a reply to this letter from Mr. Jordan (see accession number 20080404-3020). All comments on the draft EIS have been addressed in the final EIS by providing direct responses to specific questions and concerns, as well as by modifying the text in the EIS, as appropriate (see volume 2, Appendix K).

LA12-2 We do not consider this to be a conflict of interest. All of the information used by the staff to complete its environmental review is independently evaluated. The FERC staff assesses the validity of the study, verifies facts, and reviews the claims of any consultant's study done on behalf of an applicant, before accepting any data for inclusion into our environmental document.

LA12-3 The Commission encourages cooperation between the applicants and state and local authorities, and we expect the project sponsors to submit applications for necessary permits. However, this does not mean that state and local agencies, through application of state and local laws, may prohibit or unreasonably delay the construction or operations of facilities approved by the Commission. Further, state and local permits must be consistent with the conditions of any authorization the Commission may issue.