Bradwood Landing

October 19, 2007

Mr. Mitch Rohse
Clatsop County
Department of Community Development
800 Exchange Street, Suite 100
Astoria, OR 97103

**Re: Bradwood Landing Project /Excerpt from Draft Environmental Impact Statement**

Attached is an excerpt from the DEIS for the Bradwood Project describing general pipeline construction techniques to be used. Consistent with County requirements, after installing the pipeline, the applicant shall backfill all trenches, grade the backfilled area to restore its original contours and dispose of all construction debris. All excavated material not used for backfill will be removed from the site and taken to an appropriate upland disposal area outside the floodplain. All excavation will be done in a manner that does not increase displacement of flood waters, impede drainage ways or watercourses, or otherwise increase the extent of risks from flooding.

Very truly yours,

Gary Coppedge
Senior Vice President
Bradwood Landing- Northern Star Natural Gas

tank to be reused to test the second tank, thus limiting the amount of water needed for hydrostatic testing of the tanks to approximately 30 million gallons. However, if construction does not proceed as planned, the two tanks may need to be tested at different times, in which case the amount of water needed for hydrostatic testing of the tanks would be approximately 60 million gallons. The river water used for hydrostatic testing of the tanks would be filtered before use to remove suspended solids and tested for bacteria. If bacteria concentrations are high enough to cause corrosion of the steel tanks, the water would be chlorinated before use.

After hydrostatic testing of the LNG storage tanks is completed, the water would be discharged to the Columbia River through a temporary outfall extending approximately 300 feet offshore. If the water has been chlorinated, it would be dechlorinated before being discharged. NorthernStar does not expect that the hydrostatic test water from the tanks would need to be further treated before discharge to the river. However, all batches of tank hydrostatic test water would be sampled and analyzed before discharge and treated as necessary to enable safe discharge to the river.

**Pneumatic Testing of the LNG Storage Tanks**

Each tank would also be pneumatically tested at a pressure of 1.25 times the design pressure for 1 hour in accordance with API 620.

**Hydraulic/Pneumatic Testing of Piping Systems**

Piping systems would be tested in accordance with established codes either hydraulically or pneumatically, as applicable. In general, cryogenic piping would be tested with dry air or nitrogen at 1.1 times the design pressure. Non-cryogenic piping would be tested with water at 1.5 times the design pressure. Water required for the hydrostatic testing of piping (approximately 1.5 million gallons) would be obtained from the on-site groundwater well. The well water would not be treated before it is used for hydrostatic testing of piping.

After use, the hydrostatic test water from the piping would be discharged to the ground or occasionally to the Columbia River through a temporary outfall. NorthernStar does not expect that the hydrostatic test water from the piping would need to be treated before discharge to the river. However, all batches of water used for hydrostatic testing of piping would be sampled and analyzed before discharge and treated as necessary to enable safe discharge to the river.

### 2.4.2 Pipeline and Associated Aboveground Facilities

Construction of the proposed pipeline would primarily involve standard cross-country pipeline construction techniques as described in section 2.4.2.1. Special construction techniques would also be used when constructing the pipelines across wetlands; waterbodies; roads and railroads; foreign pipelines; and agricultural, residential, commercial, and industrial areas. Rugged terrain also may require special construction techniques. These special construction techniques are described in section 2.4.2.2. Construction of the aboveground facilities associated with the pipeline is discussed in section 2.4.2.3.

#### 2.4.2.1 General Pipeline Construction Techniques

Figure 2.4.2-1 shows the typical steps of cross-country pipeline construction. Standard pipeline construction proceeds in the manner of an outdoor assembly line composed of specific activities that make up the linear construction sequence. These operations collectively include survey and staking of the right-of-way, clearing and grading, trenching, pipe stringing and bending, welding and coating, lowering-in and backfilling, hydrostatic testing, and cleanup.