ORDER APPROVING AMENDMENT No. 2
NORTHWEST NATURAL GAS
SOUTH MIST FEEDER PIPELINE
ENERGY FACILITY SITE CERTIFICATE

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BEFORE THE ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON

In the Matter of the Application by	)	
Northwest Natural Gas Co.	)	
for Amendment No. 2 to its	)	ORDER APPROVING
Site Certificate for the South Mist Feeder	)	AMENDMENT No. 2
Natural Gas Pipeline Facility	)	

I. Introduction and Background

In February 1989, the Energy Facility Siting Council ("Council", or "EFSC") issued an Energy Facility Site Certificate to Northwest Natural Gas Co. ("NWN") for a 16-inch diameter gas pipeline. The pipeline transports natural gas from Mist, Oregon, in Columbia County, approximately 49 miles to a location on West Union Road, in Washington County. At its termination point it connects with NWN's gas transmission lines serving the rest of the NWN service territory. This pipeline is known as the South Mist Feeder.

The site certificate has been amended once. In March 1998 EFSC approved Amendment No.1, which made the duly adopted EFSC rules at OAR 345-027-0050 through 0080 governing the process for site certificate amendments applicable to the facility.

NWN now requests a second amendment, permitting the construction of a second pipeline traveling essentially the same route and utilizing the same corridor wherever practical. NWN submitted its application for Amendment #2 on September 15, 1998.

II. Description of the Application for Amendment

A. Description of the Facility

The South Mist Feeder connects NWN's Mist underground natural gas storage facility with the rest of NWN's transmission system. The Mist underground natural gas storage facility is a separate facility and has a separate EFSC site certificate. It provides NWN with a means of balancing relatively constant pipeline gas supplies with widely fluctuating market requirements. The underground natural gas storage operation consists of a natural gas production field, retrofitted to inject gas back into the ground and withdraw it on a cyclical basis. Gas is injected into storage during off-peak periods and is withdrawn when market demand exceeds available supplies from other sources. Underground reservoir storage requires suitable underground geological conditions in a specific geographic area, and can only be sited where those conditions exist naturally.

In July 1997, EFSC approved Amendment No.4 to the Mist underground natural gas storage facility site certificate. That amendment allowed NWN to develop new gas storage capacity at Mist, specifically in an area known as Calvin Creek.

On February 25th 1999, the Council approved the development of additional storage capacity at the Calvin Creek area, in a separate action outside the scope of this order. The increased storage capacity will require NWN to increase the capacity of the South Mist Feeder pipeline as well. Therefore, this order considers NWN's proposal to build a second pipeline along essentially the same route as the first.

B. Description of the Proposed Amendment

The pipeline expansion as originally proposed by NWN, would involve the construction a new pipeline 24 inches in diameter, travelling approximately 38 miles from the Mist underground storage facility to a location near North Plains, Oregon, in rural Washington County. For most of its length, the new pipeline would be in the approved corridor. In certain locations NWN found it necessary to deviate from the existing corridor to avoid construction difficulties or to reduce the need for stream and highway crossings. These deviations, or "reroutes", total approximately 4.5 miles in length.

The route for the South Mist Feeder begins at Miller Station, near Mist, and traverses southerly on private lands to Mist and State Highway 47, thence southerly on private land easements and the public right-of-way of State Highway 47 for about 12 miles to the vicinity of Pittsburgh, thence southerly on easements adjacent to private logging roads for about nine miles to an intersection with Bacona Road near the Washington County line, thence southerly on easements and along Bacona Road for about eight miles to Meacham Corner, thence southerly on private easements adjacent to Dairy Creek and the public rights-of-way to Dairy Creek Road and Mountaindale Road for about nine miles to just north of North Plains and State Highway 26 in Section 35, Township 2 North, Range 3 West, Willamette Meridian

At the Council's meeting on February 25, 1999 in Hillsboro, OR., the Council heard testimony from residents and farmers in the Dairy Creek area stating that the pipeline could have significant adverse impact on farms in that area. In response to these concerns, NWN proposed a condition that the new 24 inch pipeline terminate at a blowdown station on existing 16-inch line, located in the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM. This point is referred to as the "Bacona Blowdown Station" This order includes a condition requiring that the new 24-inch pipeline terminate at that location, or at some point to the north. With this condition, the 24-inch pipeline would join the existing 16-inch line at that point. In this order, we refer to the 24-inch pipeline as conditioned as the "Conditioned Pipeline Expansion."

Throughout its application, NWN refers collectively to the proposed changes to the Mist underground gas storage operation and the South Mist Feeder Pipeline as the "Project." In this order, we use nomenclature consistent with the application.

C. Council Findings Regarding the Proposed Amendment Site

The Council finds that the "construction site" of the conditioned pipeline expansion is the 440 yard wide corridor, between the Mist Underground Gas Storage Facility and the Bacona Blowdown Station, as approved in the original site certificate, dated February 1989, and the three "reroute" areas shown and described in Attachment A.

The Council recognizes that many of the findings in this Order are in some instances based on assumptions that the pipeline will be placed in specific locations within the area that NWN studied in connection with its application for this site certificate amendment. The Council also recognizes, however, that NWN will need the flexibility to make changes to the location of the

pipe in order to accommodate the requests or requirements of landowners, other agencies and on-the-ground conditions.

Therefore, the Council in this order authorizes the Office of Energy to approve adjustments to the conditioned pipeline expansion route, within the construction site, if it determines that such adjustments are consistent with the Council's findings of compliance with the standards in OAR 345 Divisions 22, 23, and 24 and do not violate conditions in this Final Order.

The Council further finds that after construction, the site, as that term is defined in ORS 469.300 and OAR 345-01-010, of the conditioned pipeline expansion shall be the 440 yard wide corridor, between the Mist Underground Gas Storage Facility and the Bacona Blowdown Station, as approved in the original site certificate, dated February 1989, except that in the reroute areas which are outside the original corridor, the site shall be the rights-of-way for the conditioned pipeline expansion that NWN has obtained by lease, easement, purchase or other lawful means.

III. Amendment Process and Procedural History

A. Amendment Process

The Council's amendment rules, OAR Chapter 345, Division 27 (November 1995 edition) apply to this request for amendment, in accordance with Amendment No.1. The applicable EFSC standards are those at OAR Chapter 345 Divisions 22, 23 and 24 (November 1995 edition). The Council applied these standards to this amendment request. EFSC must find compliance with all permitting requirements of other state agencies, other than permits delegated to another agency by the federal government.[1]

B. Procedural History

NWN submitted its Application on September 15, 1998.

Public Notice

On September 16, 1998 the Oregon Office of Energy (OOE) sent written notice of the application to all members of the EFSC general mailing list, and to all property owners meeting the criteria of OAR 345-20-011(1)(c). The public notice went also to property owners entitled to notice under Washington County's broader land use notice requirements.

The notice of application stated that the Application was available for public review at four locations: the Mist General Store, the St. Helens Public Library, the Washington County Courthouse, and the OOE office in Salem.

The notice stated that comments from the public were invited, and stated that the deadline for public comment was October 12, 1998. OOE received comments from property owners along the route of the proposed South Mist Feeder Pipeline, but none concerning the expansion of the underground gas storage facility.

On November 9, 1998, the Office of Energy also sent notice to persons and interested agencies who normally receive notice of applications for Removal/Fill permits from the Division of State Lands.

Notice to State Agencies and Affected Local Governments

On September 16, 1998 OOE sent copies of the Application to the agencies and local

[1]. In its Order Approving Amendment #4 to the Site Certificate for the Mist Underground Natural Gas Storage, EFSC determined that its jurisdiction over permits of other state agencies extends to site certificate amendments.

governments listed in OAR 345-20-040(1). OOE requested comments from agencies and affected local governments by October 12, 1998. However, because of the size of the application OOE accepted comments after the deadline.

Public Meetings Held by NWN

On October 8, 1998, NWN held an information meeting at the Natal Grange, near Mist, Oregon. NWN held a second meeting in North Plains, in Washington County, on October 21, 1998. Members of NWN explained the project and answered questions. OOE attended the meetings but did not participate. The meetings were not held pursuant to any EFSC or OOE rule, and public notification of this meeting was performed by NWN, not by OOE. Members of the public who spoke at the meetings were primarily owners of property along the pipeline route.

Public Meeting Held by EFSC

On December 11, 1998, the Council reviewed OOE's preliminary conclusions at a public meeting in Salem OR.

Proposed Order and Initial Public Comment Period

On January 19, 1999, OOE issued a Proposed Order approving the amendment. Notice of the Proposed Order was distributed to all persons on the Council's general mailing list, state agencies and affected local governments as listed in OAR 345-20-040(1), and all property owners meeting the criteria of OAR 345-20-011(1)(c). The notice stated that comments on the proposed order, including any request for contested case, must be submitted by the close of business on February 19, 1999.

Council Meeting and Second Public Comment Period

As described below in Section V., the Council received 15 letters commenting on the South Mist Feeder amendment proposed order, including a number of requests for a contested case. At its regularly scheduled meeting on February 25, 1999, the Council heard staff recommendations regarding the requests for contested case, and additional comment from the public and NWN regarding the proposed pipeline. Property owners from both Columbia and Washington Counties requested contested cases. Staff recommended granting the petitions from property owners and concerned citizens from Washington County because they raised substantive issues regarding the Council's land use, archeological and fish and wildlife standards. NWN's comments on February 25, 1999 included a proposal that the Council consider a condition that would terminate the pipeline extension before crossing the Dairy Creek Valley, thus eliminating the need for a contested case hearing on many issues. The Council postponed action on the requests for a contested case until its next scheduled meeting on March 30, 1999.

On March 15, 1999, the Office of Energy mailed NWN's proposed new condition to the Council's general mailing list, state agencies and affected local governments as listed in OAR 345-20-040(1), and property owners meeting the criteria of OAR 345-20-011(1)(c) and notice requirements of Washington County. The notice also listed conditions to ensure compliance with the Council's land use standard in Columbia County and additional safety conditions in response to a gas pipeline explosion in North Bonneville Washington on February 26, 1999. The notice stated that comments on the new proposed conditions must be submitted by the close of business on March 25, 1999. The notice further requested comments on the proposed conditions only and stated that an interested person could request a contested case concerning any issues raised by the proposed new conditions. The notice further stated that the Council would act on

the requests for contested case at its March 30, 1999 meeting and that if no contested case was granted, the Council would review the draft final order for approval.

As described in Section V, the Council received comments from property owners in Columbia County as a result of the March 15, 1999 notice. Commenters raised concerns regarding the proposed pipeline in general, but did not raise issues specifically related to the proposed new conditions. Petitioners from Columbia County renewed their requests for contested case, but no new requests for contested case were received. A group of petitioners from Washington County withdrew their requests for a contested case based on having reached a settlement with NWN on all issues.

On March 30, 1999, at its regularly scheduled meeting, the Council again reviewed staff's recommendations regarding the requests for a contested case. The staff's recommendations and Council action are fully described in Section V below. The Council denied all requests for a contested case. The Council then considered the draft final order. Staff reviewed revisions to the proposed order to incorporate the new proposed conditions identified in the notice of March 15 and changes that had been incorporated into the proposed order as a result of comments received by the end of the regular comment period on February 25, 1999. Those included additional detail on findings of compliance with the council's land use standard as a result of Council member Karen Green's comments of February 18, 1999. The Council discussed the issues raised by staff and requested that staff prepare a final order for final council action at a telephone conference call meeting to be held at 3:00 p.m. on April 7, 1999.

On March 31, 1999, the Office of Energy sent notice of the April 7, 1999 Council meeting to the Council's general mailing list, state agencies and affected local governments as listed in OAR 345-20-040(1), property owners meeting the criteria of OAR 345-20-011(1)(c) and Washington County notice requirements. The notice included instructions for participation in the telephone conference call meeting, including information about two listening sites for interested persons, one in Salem and in St. Helens. The notice also stated that the Council would not accept additional public comment on the proposal at the telephone conference call meeting.

On April 7, 1999 the Council approved the Amendment, subject to the conditions in Section VI of this Order.

IV. Findings and Conclusions

A. Compliance with EFSC Standards in OAR 345 Division 22

1. OAR 345-22-010 Organizational, Managerial and Technical Expertise

Under Part (1) of this standard the Council must determine whether the applicant has the organizational, managerial and technical expertise to construct and operate the facility. To conclude that the applicant has the organizational, managerial and technical expertise to construct and operate the proposed facility, the Council must determine that:

> "the applicant has a reasonable probability of successful construction and operation of the facility considering the experience of the applicant, the availability of technical expertise to the applicant, and, if the applicant has constructed or operated other facilities, the past performance of the applicant, including but not limited to the number and severity of regulatory citations, in constructing or operating a facility, type of equipment, or process similar to the proposed facility."

Part (2) if this standard states that:

> "if the applicant will not itself obtain any state or local government permit or approval for which the Council would ordinarily determine compliance with applicable standards, but will rely on a permit or approval issued to a third party, the Council must determine that the named third party has, or has a reasonable likelihood of obtaining, the necessary permit or approval, and that the applicant has, or has a reasonable likelihood of entering into, a contractual or other arrangement with the third party for access to the resource or service secured by that permit or approval."

Discussion: NWN is a 140 year old company whose core business is the local distribution of natural gas. NWN or its subsidiary Oregon Natural Gas Development Company ("ONG") have operated the Mist underground storage facility and South Mist Feeder pipeline since 1989. The requested amendment would not allow NWN to construct a new type of facility, but would allow expansion of an existing pipeline in essentially the same corridor. The individuals responsible for the design and construction of the pipeline expansion are the same individuals responsible for the Calvin Creek project in 1997. Inspections by OOE staff indicate that NWN complied with site certificate conditions in implementing the Calvin Creek project.

The record reveals no regulatory citations. NWN states that it has received no violations for occupational safety or any regulatory citations from DOGAMI in connection with its underground storage. Written comments by Oregon Public Utilities Commission ("OPUC"), indicate that NWN complies with construction regulations for gas pipelines as required by Title 49 Part 192 of the Code of Federal Regulations.[2]

NWN has identified, and we are aware of, no third party permits. The proposed expansion will require a limited water right (Limited Water Use License) from the Water Resources Department (WRD), and Water Pollution Control Facilities permit from Department of Environmental Quality, and a Removal/Fill permit from the Division of State Lands (DSL). NWN has applied for these permits directly. Therefore sections (2) and (3) of this standard do not apply. As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, NWN may only need to withdraw water from one of three approved sources, and may only need to discharge at one of the two discharge points for which a permit is needed from the Department of Environmental Quality (DEQ). However, no new or different permit would be required. Therefore the conditioned pipeline expansion does not affect NWN's ability to meet this standard.

Conclusion: NWN's prior experience constructing and operating the Mist Storage Facility, its construction and operation of the South Mist Feeder pipeline in 1988, successful completion of the Calvin Creek expansion in 1997, and the fact that the proposed expansion would involve identical activities, provide reasonable assurance that NWN can successfully construct, operate and retire the facility. The Council finds the proposed amendment complies with this standard. No new conditions are required.

2. OAR 345-22-020 Structural Standard

This standard requires that:

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[2] Application , Exhibits 17 and 18

"(1) The applicant, through appropriate site-specific study, has adequately characterized the site in terms of seismic zone and expected ground response during the maximum credible and reasonably probable seismic events; and

(2) The facility can be designed, engineered, and constructed adequately to avoid potential dangers to human safety presented by seismic hazards affecting the site, as defined in ORS 455.447(1)(d) and including amplification, that are expected to result from all reasonably probable seismic events."

Discussion: The standard has two components, a site characterization requirement and a design and construction requirement. NWN retained a consultant, GeoEngineers, Inc. to prepare a geotechnical investigation of the site. The application summarizes GeoEngineers' report and provides the entire report as Exhibit 19 in the Application.

Site Characterization: The original NWN proposal includes approximately 38 miles of 24 inch diameter pipeline. The route traverses the Tualatin Mountains and Tillamook highlands, in the north central portion of the Coast Range. NWN and its consultant performed a detailed investigation of the geology along the pipeline route, taking into account the area's seismic history and probable response to a seismic event.

The Oregon Building Code, 1993 Edition, designates the site as Seismic Zone 3. The code provides design criteria for structures in this zone based on the ground acceleration and likely amplification or shaking that may occur during an earthquake. NWN and its consultant considered three general sources of earthquakes in the area.

"Interplate" earthquakes are centered off the Oregon coast, where the Pacific Ocean floor and North American "plates" of the earth's crust grind together. For design evaluation, NWN considered the maximum credible earthquake to be a magnitude 8.5 event, originating 15 miles beneath the earth's surface at a distance of 45 miles from the project site.

NWN also considered an " intraplate" event, occurring as the descending slab of the Pacific Ocean floor begins to break within the earth's upper mantle, releasing stresses within the slab. NWN considered the maximum credible event from this source to be a quake of magnitude 7 originating 30 miles beneath the earth's surface at a distance of 6 miles from the site.

Finally, NWN considered quakes from random crustal events, based on the seismic history of the area (Application Exhibit 14). The maximum credible event from this source was found to be a magnitude 6 event, originating 6 miles beneath the surface at a distance of 6 miles from the site.

GeoEngineers performed a site specific investigation of ground response from these postulated events, calculating horizontal peak ground accelerations using attenuation relations based on ground motion recordings at the ground surface of a site similar to the Reichhold Gas Pool site in the Calvin Creek storage area. The expected surface ground motion levels were less than the Uniform Building Code Zone Factor of 0.3 g. GeoEngineers used the maximum credible seismic event rather than the lesser "reasonably probable" event, and the resultant ground accelerations were within design criteria for Uniform Building Code Seismic Zone 3. In portions of the proposed pipeline alignment to the south of "Snoozeville Center" (which is south of the Bacona Blowdown Station), OOE requested additional information on ground acceleration, since the soil in that area may not be the same stiff soil assumed at the Reichhold pool. NWN provided more detailed site coefficients in addition to the peak ground acceleration which reflect the alluvial soils that exist there. However, these coefficients apply in the Uniform Building Code to buildings, not below ground pipelines.

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the conditioned pipeline expansion would avoid the area south of Snoozeville Center. The conditioned pipeline expansion removes part of the pipeline alignment from consideration but does not add any alignment not previously considered. Therefore the conditioned pipeline expansion remains adequately characterized by the geotechnical studies described in the application.

We conclude that NWN has adequately characterized the site in terms of seismic zone and ground response during the maximum credible event, based on appropriate site specific study.

Design and Construction Requirement: GeoEngineers considered the potential for mass movement, differential soil compaction and settlement, and liquefaction.

NWN surveyed potential landslide areas along the proposed alignment and classified them as active or dormant. Active landslides show recent movement in the field or in aerial photographs, fresh soil or rock exposed in main or minor scarps, open distinct ground cracks, or disruption of vegetation. Active landslides are considered capable of causing the pipeline to move or sustain abnormal loads. Dormant landslides do not show recent movement in field or aerial photographs, bedrock is weathered where exposed, no ground cracks are visible, vegetation is reestablished, minor scarps and transverse ridges are modified to appear hummocky. Dormant landslides are not considered to pose an unacceptable hazards to the pipeline.

In areas of active landslide areas, the proposed pipeline was either rerouted to avoid the area or the alignment was adjusted within the area and monitoring was proposed. In areas where the active or dormant status was uncertain, the alignment was adjusted to avoid the hazard or monitoring was proposed.

The slopes traversed by the proposed pipelines are generally shallow and are comprised of stiff, cohesive soils. The risk of differential soil compaction was also considered low because deposits of susceptible soils are thin.

Liquefaction along the mountainous portions of the pipeline alignment was not considered a significant concern because of the high plasticity of surface soils and the lack of a continuous ground water table. The one area where liquefaction could be a concern is the sandy soils in the low lying portions of the Nehalem River valley and East Fork Dairy Creek Valley. As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the conditioned pipeline expansion would avoid the East Fork Dairy Creek Valley altogether. However, the greatest hazard is generally at river banks and creek banks. The planned pipeline crossings will be established below the depth of potential lateral spreading. Most of the river crossings will penetrate the sedimentary rock that is present at relatively shallow depths. Liquefaction and lateral spreading of overlying alluvium will not affect pipes buried in rock. Consequently the hazard at stream crossings is relatively low.

GeoEngineers also considered the risk of surface fault rupture. They concluded that there is a very low risk of surface fault rupture because of the lack of recent surface faulting and the lack of small earthquakes in the recent historical record.

Based on GeoEngineers' investigation, NWN has concluded, and we concur, that the risk of seismic hazards as defined in this standard is low. In minimizing the risk, NWN has used similar techniques to those used in the 1997 Calvin Creek project, particularly in selecting the pipeline route. NWN placed the alignment on ridge tops or vertically up the hillside, rather than traversing on side hills. All of the slope segments steeper than 20 percent were designed to

follow the fall line of the slope. This minimizes the stress on the pipe in the unlikely event of a landslide. Further, NWN has cited a study of welded steel pipelines in California that indicates that the planned pipeline is not vulnerable to the expected levels of seismic ground shaking. GeoEngineers recommended[3] that seismic design of facilities underlain by shallow bedrock (geologic units T_{CRB}, T_S, T_{PB}, T_K, and T_{KV} on Figure G-3 of application Exhibit 19) be performed using the following parameters:

Parameter		Value
Seismic Zone Factor	Z	0.30
Soil Profile Type	S	S_B
Seismic Coefficient	C_a	0.30
Seismic Coefficient	C_v	0.30

These recommendations shall be added to the site certificate as conditions. The section of the proposed project south of Snoozeville center is eliminated by condition, and therefore GeoEngineers' recommendations for that section do not apply.

Conclusion: The Council reviewed the Application and Exhibits in consultation with DOGAMI. In commenting on the Application's technical adequacy, DOGAMI wrote[4]:

> "DOGAMI finds the methodology used by the applicant to be acceptable and is in agreement with the conclusions regarding seismicity and geologic hazards. In conclusion, the Northwest Natural Application to Amend the Site Certificates for the Mist Underground Gas Storage Project and the Mist South Feeder Pipeline has been reviewed and found to be complete and adequate regarding geological and seismic hazards. The application contains reports, which represent a high level of rigor by the applicant to consider these hazards."

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") avoids some of the area subject to liquefaction, buoyancy and lateral spread. The conditioned pipeline expansion does not introduce hazards not analyzed in the application. Therefore the condition to terminate the pipeline at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM does not affect any assumptions or findings of compliance with this standard.

The Council finds that NWN has adequately characterized the site in terms of seismic zone and expected ground response during maximum credible seismic events, and with the above conditions, can design and construct the facility to avoid potential dangers presented by seismic hazards affecting the site. NWN representations and commitments in support of this application shall be added to the site certificate conditions, as listed in Section VI.B of this proposed order.

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3 NWN letter from Charlie Stinson to Adam Bless, December 21, 1998

4 DOGAMI letter from Dan Wermeil to Adam Bless "Comments Re: Northwest Natural Application to Amend the Site Certificates for Mist Underground Natural Gas Storage and the South Mist Feeder Pipeline" October 6, 1998

3. 345-22-022 Soil Protection

Under this standard the Council determines whether the construction and operation of the facility, taking into account mitigation, is likely to result in a significant adverse impact to soils.

Discussion: The Application includes a soils investigation and report (Application, Exhibit 19) provided by NWN's consultant, GeoEngineers. The Exhibit identifies thirty five soil types that will be subject to project construction activities. The soil types are characterized in terms of soil depth, permeability, water capacity, effective rooting depth, runoff, and water erosion hazard.

Construction of the pipeline will result in temporary disturbance to a variety of soil types. NWN will minimize the disturbance by limiting the width of the construction right-of-way and establishing plant growth after burial. Native soils will be used for backfill. Where necessary, the pipeline will be surrounded by bedding sand.

GeoEngineers considered the anticipated impacts of construction activities on soils with respect to non-seismic hazards such as soil compaction, erosion, ground water, mass wasting, slumping and sliding. Soil compaction should be minimal. Embankment fills are not planned, and the buried pipeline will not significantly change the stress in the alluvial soil deposits.

Impact from erosion will be minimized by keeping the pipeline alignment as narrow as practical and by revegetating over the trench backfill. Ground water and rain may choose a preferential path through the pipeline backfill materials. The site certificate shall be conditioned to require NWN to implement erosion control measures recommended by GeoEngineers as described in Exhibit 19 §§ 5.2 and 5.3 of the application.

Temporary erosion control may be required until native plans are re-established. NWN has committed to implement erosion prevention techniques and sediment control measures described in the Washington County Erosion Control Technical Guidance Book, dated February 1994.[5]

NWN has minimized impacts from mass wasting, slumping, and sliding by adjusting the pipeline alignment to avoid, where feasible, slopes that are most affected. NWN will use strain gauges, inclinometers and surface surveys to monitor ground movement and allow for mitigation of any stresses on the pipeline.[6] These measures shall be added to the site certificate as conditions.

Conclusion: The NWN commitments identified above, and the construction recommendations of GeoEngineers, (Application Exhibit 19 Sections 5.2 and 5.3) shall be added as conditions to the Site Certificate. With these conditions, the pipeline is not likely to result in significant impacts to soils. The Council finds compliance with this standard, with the recommended conditions listed in Section VI.B of this proposed order.

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W,WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") does not introduce potential soil hazards or impacts other than those analyzed in the application. The conditioned shortening of the 24-inch pipeline eliminates part of the pipeline, but does not add pipe in any new location. Therefore the Council finds that the conditioned pipeline expansion complies with this standard.

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[5] NWN letter from Charlie Stinson to Adam Bless dated December 21, 1998

[6] ibid.

4. 345-22-030 Land Use

Under this standard, the Council must determine whether the facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission. NWN has elected to address this standard by obtaining a land use determination from the Council pursuant to ORS 469.504(1)(b).

The Council reviewed the Application in consultation with the affected local governments, and received comments and recommended conditions from the Washington County and Columbia County Land Use Departments. These recommendations shall be added to the conditions of the site certificate, with one exception. The recommendation of Washington County regarding directional boring of all streams has been replaced by an itemized list of stream crossings where NWN will use directional boring, based on recommendations and findings described in detail in the analysis of the Council's Fish and Wildlife Standard, section IV.A.7 of this Order.

The detailed analysis and findings of compliance with applicable land use requirements are included as Appendix A to this Final Order. The Appendix takes into account the condition to terminate the pipeline at the Bacona Blowdown Station and conditions needed to assure compliance with the Council's Land Use Standard in Columbia County. Based on the analysis and findings in Appendix A, and the conditions listed in Section VI of this order, the Council finds that the conditioned pipeline expansion complies with its Land Use Standard.

5. 345-22-040 Protected Areas

This standard prohibits the siting of an energy facility in any of the protected areas listed in OAR 345-22-040(1). The council must determine whether, taking into account mitigation, the design, construction and operation of a facility located outside the areas listed in OAR 345-22-040(1) is likely to result in significant adverse impact to any of the listed protected areas.

Discussion: The route of the conditioned pipeline expansion does not cross any protected area. The closest protected areas to the proposed route are a BLM Area of Critical Environmental Concern that is about four miles from the southern end of the route, in the East Fork Dairy Creek area, and an OSU research forest that is about five miles from the northern end of the route, north of Mist. Other protected areas are more than ten miles from the proposed route.

The impacts of construction (such as noise and land disturbance) will be confined to the immediate vicinity of the proposed route, or will be short-term and of a small magnitude (such as construction-related traffic). For these reasons, construction would not adversely affect any protected area. Operation of the expanded facility would require maintaining the right-of-way free of large vegetation and periodic inspection of the pipeline. Neither of these would cause impacts that could affect any protected areas due to their distance from the route. The proposed condition to terminate the pipeline at the Bacona Blowdown Station would not add any impacts to protected areas and would only remove certain areas from construction. Therefore that condition does not affect any previous findings of compliance with this standard.

Conclusion: The conditioned pipeline expansion is not located in any protected area and is too far from the closest protected areas to affect them. The conditioned pipeline expansion is not likely to have an adverse impact on any protected areas listed in this standard. No new conditions are required.

6. 345-22-050 Financial Assurance

To issue a Site Certificate, the Council must find that the applicant has a reasonable likelihood of obtaining a bond or comparable security, satisfactory to the Council, in an amount adequate to restore the site if the certificate holder:

(1) Begins but does not complete construction of the facility; or

(2) Permanently closes the facility before establishing a financial mechanism or instrument, satisfactory to the Council that will assure funds will be available to adequately retire the facility and restore the site to a useful, non-hazardous condition.

Discussion: This standard was not in effect when EFSC granted the original Site Certificate. In reviewing this amendment request we consider the effect the proposed pipeline addition would have on NWN's ability to procure funds for site restoration.

Site restoration for the pipeline would consist primarily of cutting and capping the pipeline and abandoning it in place. NWN would not dig up the pipeline because that would cause more impact than leaving it. NWN would ensure that no hazardous materials are left. Restoration of the right-of-way would already have largely been completed because NWN is required under other EFSC standards (Soil Protection, Fish and Wildlife Habitat) to backfill the trench with native soils and revegetate the disturbed area. NWN estimates the cost to retire the 24 inch pipeline at approximately $66,000. We concur in that estimate.

In the unlikely event that NWN begins construction and cannot complete the project, NWN would still be required to restore the site. This could include filling of all open trenches and restoring vegetation. Regarding the cost of such restoration, NWN stated that:

> "If the project were halted prior to completion, terms of the pipeline construction contract would require additional fees to the contractor for early termination plus there would be costs related to other issues, such as restoration of any right-of-way that had been disturbed. The exact cost impact of this type of event depends on how far we are into actual construction. NWN may have to pay for move-in, move-out and other job related costs to the contractor, backfilling of any open ditch, revegetation and restoration costs, and any damages to rights-of-way as specified in easements. These are obligations that NWN incurs during the course of the construction of the pipeline, whether or not the project is actually completed. Estimates for these costs could approach $500,000 over and above the out-of-pocket costs at the time of cessation of construction activity. We intend to honor these obligations and have the financial capability to do so."[7]

NWN provided Annual Financial Reports for 1997, 1996 and 1995. NWN showed total operating revenues of $362 million in 1997, $380 million in 1996, and $356 million in 1995, with net operating revenue of $232 million in 1997, $237 million in 1996, and $212 million in 1995. The financial report for 1997 also shows that at year end 1997, NWN assets included $6.7 million in cash and cash equivalents. NWN has paid dividends each year for 40 years, providing additional assurance of the NWN's financial stability.

These reports show that NWN would be able to secure a bond or comparable security to secure restoration costs of $500,000. As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") would be shorter than the 38 miles originally proposed. The

[7] NWN letter Charlie Stinson to Adam Bless, December 21, 1998.

task of cutting and capping the line at the Bacona Blowdown would be similar in scope and expense to the task of cutting and capping the termination point on Mountaindale Road as described in the application. The amount of land to be restored would not include land in Dairy Creek Valley, and other than that would include the same land included in the $500,000 estimate above. The restoration cost remains a small fraction of the net operating revenues and cash assets described above. Therefore the condition terminating the 24-inch line at the Bacona Blowdown Station does not affect findings of compliance with the Financial Assurance Standard.

Conclusion: The Council finds NWN is reasonably likely to be able to secure a bond or comparable security to secure the cost of restoring the site. No new conditions are required.

7. 345-22-060 Fish and Wildlife Habitat

The Council's Fish and Wildlife habitat standard states:

> "To issue a Site Certificate, the Council must find that the design, construction, operation and retirement of the facility, taking into account mitigation, is consistent with the fish and wildlife habitat mitigation goals and standards of OAR 635-415-0030."

Discussion

OAR 635-415-030 contains the Oregon Department of Fish and Wildlife's (ODFW) habitat mitigation goals and standards.[8] OAR 635-415-030 describes four habitat categories which are based on their importance to fish and wildlife. The rule establishes mitigation goals and corresponding implementation standards for each habitat category.

OAR 635-415-0030(1) defines Category 1 as:

> "habitat of exceptional value for an evaluation species and irreplaceable and unique . . . or is critical habitat as defined in the Endangered Species Act of any federally listed threatened or endangered species."

The mitigation goal is "no loss of either habitat units or habitat value."

The implementation standard requires avoidance of impact. If impact cannot be avoided, the standard requires that the development action cannot be authorized. OAR 635-415-0030(1)(b). Both the ODFW and the Council interpret this standard to allow minor, temporary disturbance to limited areas that does not result in loss of habitat units or habitat value for the species in question.

At the time of NWN's application, the Oregon Coast coho salmon was listed as a threatened species under the Endangered Species Act (ESA). The Oregon Coast coho salmon is found in the Nehalem River drainage, and habitat categorization for that drainage was based on the ESA listing. The pipeline as initially proposed also crossed the East Fork Dairy Creek drainage which is tributary to the Tualatin River. ODFW has identified areas within the East Fork Dairy Creek drainage as habitat for the Upper Willamette River steelhead. The National Marine Fisheries Service (NMFS) had proposed listing the Upper Willamette River steelhead as threatened under the ESA at the time NWN submitted its application for amendment. The habitat categorization in NWN's application for the East Fork Dairy Creek drainage did not consider the Upper Willamette River steelhead as an evaluation species. The NMFS listed the Upper Willamette River steelhead as threatened on March 16, 1999.

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[8] The Council's standard incorporates ODFW standards that were in effect at the time the Council's rule was adopted. In this case, the applicable Council rules were adopted in 1994. Although ODFW amended its fish and wildlife habitat rules in 1998, the Council applies the prior rule.

The applicable definition of Habitat Category 2 is:

> "habitat of high value for an evaluation species and is scarce or becoming scarce statewide or within the physiographic province." OAR 635-415-0030(2).

The goal is "no net loss of either habitat units or habitat value." OAR 635-415-0030(2)

The implementation standard is avoidance of impact or "reliable in-kind and on-site mitigation methods to achieve no net loss of pre-development habitat units or habitat value for any [evaluation] species." OAR 635-415-0030(2)(b). The standard allows five years to accomplish the mitigation.

Habitat Category 3 is habitat of "high to medium value [which is] abundant statewide or within the physiographic province." OAR 635-415-0030(3). The goal is "no net loss of either habitat units or habitat value." The implementation standard is avoidance of impact or mitigation either in-kind or out-of-kind, and either on-site or off-site. The mitigation must be accomplished within 15 years of development. OAR 635-415-0030(3).

Habitat Category 4 is habitat of low value. The goal is "minimize the loss" of habitat value or, if possible, conserve or enhance habitat. The implementation standard provides for flexible mitigation.

In addition, ORS 469.501 which requires that the Council "adopt standards for the siting, construction, operation and retirement of facilities" specifically provides that the Council consider "(e) effects of the facility, taking into account mitigation, on fish and wildlife, including threatened and endangered fish, wildlife or plant species." ORS 469.501(1)(e) (emphasis added.)

a. OOE Review Approach

Unless otherwise stated, this analysis of fish and wildlife habitat is based on the proposed pipeline route as conditioned by the Council to terminate at a point in Washington County about 4.45 miles south of the Washington County boundary, which is north of Dairy Creek valley. In reviewing NWN's proposal for compliance with EFSC's fish and wildlife habitat standards OOE staff considered the recommendations of ODFW staff to determine whether the standards were met. Although the ODFW standard for Habitat Category 1 does not permit consideration of mitigation, the Council is allowed to consider mitigation to determine whether the fish and wildlife standard is met. In all cases OOE and ODFW recommend measures to first avoid impacts, then measures to reduce or minimize impacts that are unavoidable, then measures to restore disturbed areas to near pre-construction conditions, and where that is not possible, to compensate for the impact by enhancing appropriate sites in the project area. OOE in considering mitigation has recommended permitting or requiring "in-kind and on-site" measures, followed by "in-kind and off-site" measures. In those situations where in-kind, on-site mitigation is not possible, OOE has required improvement of similar habitat off site to assure that the amount of habitat of any type is fully replaced after construction. OOE has considered "out-of-kind mitigation" only when it is not possible to replace the habitat or biological functions in kind, or where out-of-kind mitigation would provide superior biological benefits. OOE's recommended mitigation requirements are also conservatively designed to address the risk that some mitigation might underperform.[9]

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[9] On January 11, 1999, the Governor issued Executive Order No. 99-01 addressing the Oregon Plan for Salmon and Watersheds. That Order, addressed to all Oregon agencies directs that "agencies of the state of Oregon, will, consistent with their authorities, fully implement the state agency efforts described in the Oregon Plan and in this

In its analysis, OOE, in consultation with the ODFW, has given highest priority to the federally-listed Oregon Coast Coho salmon in the Nehalem River drainage. In the East Fork Dairy Creek drainage, where listed coho salmon are not present, OOE, in consultation with ODFW, has given highest priority to the Upper Willamette River steelhead that was listed by the National Marine Fisheries Service (NMFS) as threatened March 16, 1999.

The proposed conditioned pipeline expansion route extends through a variety of habitat types. For most of its length, the pipeline route crosses tree farms dominated by young conifer forests and 20- to 50-year-old conifer and mixed conifer/deciduous forests. The mixed conifer/deciduous forests are found mostly in lowland floodplains and riparian areas, especially near the Nehalem River. Two upland scrub-shrub areas are located along O'Black Mainline Road amidst conifer forest. The pipeline route, as conditioned, crosses a variety of pasture areas near Mist along Highway 47. The pipeline will cross various types of forested, scrub-shrub, emergent and open water wetlands in forested and in pasture areas. Each of these habitat types is described below.

The proposed conditioned pipeline expansion route crosses 50 waterways, and includes the Nehalem River drainage and a small area within the Dairy Creek drainage. In the Nehalem drainage the route crosses the Nehalem River at two locations, nine large-sized tributary streams[10], two medium-sized tributary streams and 27 small-sized tributary streams. In the Dairy Creek drainage the route crosses six small-sized tributary streams. (Application, Exhibit 22 Table 7, amended.)

The conditioned pipeline expansion route crosses 45 wetland areas in the Nehalem River drainage and seven wetland areas in the Dairy Creek drainage. Emergent plants dominate a majority of these wetlands. Emergent wetlands are found along streams and drainages in forested areas and on the Nehalem River floodplain. Most of the forested and scrub-shrub wetlands are found along O'Black Mainline Road and Corral Mainline Road, in the Nehalem drainage, and near Bacona Road, in the Dairy Creek drainage.

The habitat categories for various wetlands, as initially proposed by NWN, are listed in the Application, Exhibit 22, Table 8. NWN proposed that wetlands along the pipeline route be within Category 1 if they potentially provide streamside habitat for Coho salmon. NWN characterized wetlands as Category 2 if they provide habitat for a variety of species and potential habitat to a state sensitive amphibian, the northern red-legged frog. NWN identified one Category 3 wetland along the pipeline route because it provides seasonal habitat for waterfowl. NWN characterized all other wetlands, including those in pastures, agricultural fields and degraded forested areas, as Category 4.

Executive Order." Specifically the Executive Order directs that actions that state agencies take, fund and/or authorize that are primarily for a purpose other than restoration of salmonids or the habitat they depend on will, considering the anticipated duration and geographic scope of the actions:

(A) to the maximum extent practicable minimize and mitigate adverse effects of the actions on salmonids or the habitat they depend on; and

(B) not appreciably reduce the likelihood of the survival and recovery of salmonids in the wild.

Executive Order No. 99-01, p. 4. Coho salmon were identified as an evaluation species by NWN in its application to the Council (page 83). Staff and ODFW staff concluded that other salmonid species in the Nehalem drainage would be adequately protected by the mitigation measures designed to protect coho habitat.

[10] Table 7 shows crossing numbers 2 and 4 as medium-sized tributaries. The Application at pages 87 and 88 states that field measurements of these stream flows indicate that both should be considered large-sized tributary streams. This analysis treats these are large-sized tributary streams.

ODFW reviewed Table 8 and visited the proposed site on several occasions. As a result of their review, ODFW suggested several changes to the habitat categorization of wetlands to more accurately reflect the manner in which ODFW interprets and applies its rules. In particular, ODFW requested that all forested wetlands be considered Category 2, and that no wetland be considered Category 4. NWN agreed to these changes and they are reflected in the Preliminary Mitigation Plan[11] ("PMP"), Table 1. The analysis in this order is based on the revised information.

b. Habitat Categories

Category 1:

NWN has identified the following stream and wetland crossings as within ODFW's category 1:[12]

1) Nehalem River, crossing numbers 8 and 26, because it is used by federally-listed Coho salmon;

2) Seven large-sized tributary streams to the Nehalem River because they are used by federally-listed Coho salmon. These are crossings numbered 2, 4, 5, 20, 30, 34 and 35;

3) Two medium-sized tributary streams to the Nehalem River because they are used by federally-listed Coho salmon. These are crossings 16 and 29;

4) Deciduous forests in locations (crossings numbered 2, 8, 16 and 30) where they act as stream side (riparian) buffers for streams and rivers which are used by federally-listed Coho salmon (stream that are Category 1 habitat);

5) One forested wetland, 060514C at the Lindgren Creek crossing (crossing number 2), because it borders a stream which is used by federally-listed Coho salmon;

6) One emergent wetland, 040306B on the bank of Kenusky Creek (crossing number 34), because it borders a stream which is used by federally-listed Coho salmon;

These categories are based on updated information supplied by NWN. ODFW advises that these stream and wetlands crossings may also be defined as category 1 because they can be classified as "habitat of exceptional value for an evaluation species [the coho salmon] and [are] irreplaceable and unique." OAR 635-415-030(1).

Category 2: [13]

The following crossings have been classified Category 2 Habitat:

1) Six small-sized tributary streams to the Nehalem River because they provide habitat for a variety of fish species (crossings numbered 3, 12, 13, 18, 19 and 23);

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11 NWN, Preliminary Mitigation Plan, November 18, 1998, revised in Preliminary Mitigation Plan dated February 1999, and provided by NWN in its February 19, 1999 comments on the proposed order.

12 All crossing numbers refer to Application Exhibit 22, Table 7, Stream Crossings, as amended. The table was amended at the request of ODFW to reclassify certain category 3 streams as category 2 and to reclassify category 4 streams as category 3. One creek, Lyons Creek, was reclassified from Category 4 to Category 2 because of the presence of native and fluvial cutthroat trout. The reclassification did not result in the identification of additional category 1 crossings.

13 A number of category 2 streams, their riparian areas, and wetlands were eliminated from consideration as a result of the Council's condition to terminate the pipeline north of Dairy Creek valley. These are stream crossings 51 (East Fork Dairy Creek), 54 (Plentywater Creek), 52, 56, 57, 58 and 60, and their associated riparian vegetation, and nine wetland crossings. See the February PMP, Tables 1 and 2.

2) Forested wetlands that do not provide habitat value for federally-listed Coho salmon or steelhead, but do provide high quality habitat for a variety of fish and wildlife species, including state-listed sensitive amphibian species;

3) Scrub-shrub wetlands because they are associated with streams and provide habitat to a wide variety of wildlife species;

4) Certain emergent wetlands because they provide breeding areas for a variety of aquatic organisms;

Category 3:

The following routing and crossings are classified as Category 3 Habitat: coniferous forest; mixed conifer and deciduous forest; deciduous forest that does not act as a riparian buffer on Category 1 or 2 streams; young coniferous forest; forest clear-cuts; scrub-shrub; pastures; agricultural crop areas; small-sized tributary streams that do not provide high quality fish habitat; man-made ditches and channelized streams; and emergent wetlands that do not provide high-quality habitat because of their small size, location within a pasture or agricultural area, or because they have been degraded by grazing, moving cultivation or clear-cutting.

Category 4:

The ODFW does not consider any of the area within the proposed route to be habitat category 4, except for locations where the route crosses, or is under, a highway or heavily used logging road.

c. Construction-related Impacts

In its comments on OOE's Proposed Order (NWN letter to Adam Bless, dated February 19, 1999), NWN proposed a number of refinements to its construction of the 24 inch pipeline. These included using directional boring to cross under several additional category 1 streams, allowing mature trees to grow in the permanent right-of-way up to five feet from the pipeline, and preserving existing habitat where possible. The Council has considered this updated information in making its findings, as discussed below.

The typical construction right-of-way (ROW) for the proposed conditioned pipeline expansion is 80 feet wide. However, where the route crosses wetlands and waterways (rivers, streams and creeks), NWN proposes to reduce the construction ROW to 30 feet. Construction activities will consist of clearing the construction right-of–way, excavating the pipeline trench, placing pipe into the trench and replacing the removed material into the trench after placing the pipeline. During construction NWN will use appropriate erosion control and sediment control measures, such as those in Washington County Erosion Control Plans Technical Guidance Book (February 1994)(Stinson, NWN letter to Bless, OE, dated 12/21/98), as necessary to prevent material from leaving the construction area or adversely affecting water quality in nearby and downslope streams. NWN will also use best management practices (BMP) and follow Oregon Department of Forestry Forest Practice Administrative Rules during construction. NWN will also use, where applicable, the mitigation measures described below for wetlands, streams and riparian areas.

After burying the pipe, NWN will return the construction area to its approximate original grade, place water bars and other water-erosion control measures in the cleared area as needed, and revegetate the disturbed area to reduce erosion. NWN proposes to maintain a permanent ROW over the pipeline. Where the proposed conditioned pipeline expansion is immediately adjacent to the existing 16 inch pipeline, this ROW would be a total of 50 feet in width (ten feet added to the existing 40 foot ROW for the 16 inch pipeline). Where the proposed conditioned pipeline

expansion deviates from the existing 16 inch pipeline, this ROW would be a total of 40 feet in width. In upland areas (areas that are not wetlands or riparian areas), NWN will allow and encourage natural vegetation to return in the disturbed area with the exception that NWN will prevent trees taller than about five feet from growing in the permanent (maintenance) right-of-way. Where the proposed conditioned pipeline expansion crosses wetlands and riparian areas, NWN proposes to reduce the permanent ROW from 40 to 30 feet. Moreover, at wetland and riparian area crossings, NWN proposes to allow trees to grow in this 30-foot ROW, except in a ten-foot wide area immediately over the pipeline (five feet on either side of the centerline of the pipeline). This will allow the reestablishment (after trees are mature) of a continuous tree canopy over the pipeline.

A discussion of the construction-related impacts by Habitat Category follows.

Category 1 Habitat.

Nehalem River. There will be no impact to the Nehalem River or its associated deciduous forest riparian buffer at both crossings (8 and 26) because construction will be done using directional boring. This technique will not disturb an area within about 250 to 300 feet on either side of the river at each crossing.

Large-sized tributary streams. There will be no impact to six out of the seven large-sized tributary streams (2, 4, 20, 30, 34 and 35) or their associated riparian buffers because directional boring will be used. The Council finds that, subject to the conditions in this order, the ODFW fish and wildlife habitat goals and standards found at OAR 635-415-030(1) are met for those stream crossings that will be accomplished by directional boring.

The seventh large-sized tributary stream, Battle Creek (crossing number 5), will be accomplished by trenching as described under medium-sized tributary streams immediately below. The location of the crossing is such that it will not require removing any trees.

Medium-sized tributary streams. There will be no impact to one of two medium-sized tributary streams (29) or its riparian buffer because NWN will use directional boring. The other medium-sized tributary stream, Fall Creek (16) will be crossed by trenching . NWN proposes to minimize impacts to the streams it will cross by trenching by using a flume to pass stream flow past the construction area. This will prevent the release of sediment from construction activity into the stream and will allow fish to move upstream and downstream past the construction site. NWN proposes several additional measures to avoid adverse effects which are discussed in Section IV.A.7.d of this Order, "Mitigation Proposed by NWN." ODFW has recommended additional conditions to ensure consistency with the mitigation goals and standards. These are discussed below, in section IV.A.7.e "Mitigation Recommended by ODFW." With appropriate mitigation, the proposed crossings would cause no permanent loss or reduction of in-stream area, or water volume or flow.

Deciduous forests in riparian areas. Based on additional information provided by NWN in its comments on the proposed order, deciduous riparian forest trees will not be removed at any Category 1 stream crossing, with the exception of Fall Creek (crossing number 16). The Fall Creek crossing will require the removal of about 20 alder trees in the riparian buffer during construction. As stated by NWN in response to a request for additional information from OOE staff and ODFW:

> "The riparian vegetation at the Fall Creek Crossing location extends approximately 50 feet from each bank and is bordered by a clear cut on one side and roadbed on the other side.

There are approximately 20 alder trees within the 30 foot corridor that will be removed during construction. Two of these trees are 12" dbh (trunk diameter at breast height) with 18-foot crowns and the other trees are 8" dbh or less and have 12 foot or smaller crowns. Five of the smaller alders are located near the streambanks, and provide partial canopy cover to the creek.

The short-term impact of the crossing would be the loss of most of the canopy shade along the central 10 to 20 feet of corridor crossing the stream (with about 5-10 feet of partial canopy shade provided by trees on each side of the corridor). The construction corridor within the riparian area of Fall Creek will be replanted with alders to provide new canopy cover as quickly as possible. Slower growing conifer trees (hemlock, cedar, etc.) will be inter-planted among the alders to provide better canopy cover and bank stabilization/large woody debris (LWD) recruitment as they grow above the early successional alders. No trees will be planted directly over the pipeline. The small alders present at this crossing site provide some canopy cover but are too small at this time to provide much bank stabilization or recruitment of LWD. Their removal will create no measurable increase in stream temperature or loss of stream function for spawning and rearing Coho salmon. With the exception of the pipeline corridor and road crossings, the riparian zone along Fall Creek is intact over the length of the stream. No cumulative effects to Coho salmon habitat will occur from this single crossing.

In summary, the proposed Fall Creek crossing will impact the stream through the removal of approximately 20 alder trees between 8 and 12 inches trunk diameter at breast height (5 streamside trees) and the digging of a trench for the pipeline through the streambed and streambank. Flume or diversion methodology will be used during instream work and all applicable "Best Management Practices" (BMPs) and standards and guidelines will be followed to prevent sediment from the construction site entering the stream during or after construction activities. The streambed and streambank will be restored and stabilized before the return of Coho spawners and it will take approximately 6-10 years for complete restoration of the canopy cover. The stream channel will be restored to its pre-construction configuration and any spawning gravel removed during trenching will be replaced with clean gravel of the appropriate size and form for utilization by spawning coho. LWD will be placed in the creek channel after construction and stabilization to maintain pool/riffle structure and control bedload transport. In regards to spawning and rearing coho salmon, the removal of alder trees during pipeline construction should have no measurable effects on stream function and stream canopy conditions will be restored to pre-construction conditions in approximately 6-10 years. There will be no short-term or long-term increases in stream temperatures, sedimentation rates, [or loss of] coho habitat or recruitment of LWD."[14]

In its comments on the Proposed Order, NWN further agreed that at the Fall Creek crossing it will: 1) place the alder trees that are removed during construction into the stream to create woody debris habitat for fish; 2) replant alder trees, and perhaps other tree species, at the crossing within all but a ten-foot wide area in the permanent ROW, to reestablish a continuous tree canopy over the pipeline over time; 3) plant shrubs along the bank at the crossing to provide

[14] NWN, Report on the Impacts of Tree Removal at the Fall Creek Crossing of the South Mist Feeder Pipeline, 12/29/98.

immediate shade; and 4) replant all but a ten-foot wide area in the ROW with additional shrubs beneath the alder trees.

The Council finds that the proposed crossing of Fall Creek (and all Category 1 stream crossings), will not harm listed species, contingent upon NWN's implementation of mitigation measures and subject to the conditions recommended below in section IV.A.7. k.

Wetland areas. Construction would not affect the two category 1 wetlands:

- 0.05 acres of forested wetland and 0.04 acres of emergent wetland (060514C) adjacent to Lindgren Creek (crossing number 2); and
- 0.04 acres of emergent wetland (040306B) adjacent to Kenusky Creek (crossing 34)

NWN's proposed use of directional boring for stream crossings at Lindgren Creek (number 2) and Kenusky Creek (34) will avoid these two wetlands.

The Council finds that, subject to the conditions of this order, the proposed crossing of both Category 1 wetlands (060514C and 040306B) using directional boring will not harm listed species and complies with the ODFW fish and wildlife habitat goals and standards at OAR 635-415-030(1).

Category 2 Habitat

Small-sized tributary streams. The six Category 2 Habitat stream crossings (3, 12, 13, 18, 19 and 23 in the Nehalem River drainage) are small -sized tributary streams (flows less than 2.5 cubic feet per second). NWN proposes to cross Lyons Creek (3) by directional boring. This will avoid impact to this creek and an associated wetland (060514A). The remaining five crossings will be accomplished by trenching across the stream. NWN will minimize impacts to these streams by using a flume to pass stream flow past the construction area (if there is water flowing at the time of construction). This will prevent the release of sediment from construction activity into the stream and will allow fish to move upstream and downstream past the construction site. NWN will also use the measures discussed in section IV.A.7.d to reduce adverse impacts to these streams and to their associated riparian buffers. ODFW has recommended additional conditions to ensure consistency with the mitigation goals and standards. These are discussed below, in section IV.A.7.e. With appropriate mitigation, the proposed crossings would cause no permanent loss or reduction of in-stream area, or water volume or flow.

A small number of trees in the riparian buffers will be removed during construction at Category 2 stream crossings (a total of about 0.10 acre at crossings 12, 13, 18, 19 and 23 based on Table 2 in the revised PMP, dated February 1999). In its comments on the Proposed Order, NWN agreed that at these crossings it will: 1) compensate for any lost trees by planting a mix of tree species within the ROW (beyond the 10-foot wide area directly above the pipeline) at the crossing, or if that is not possible, in close proximity to the crossing; 2) place any trees that are removed during construction in the stream to provide in-stream woody debris; 3) trim or remove blackberries, if present, at the stream crossings; and 4) plant shrubs along the stream bank at the crossing to provide shade. NWN will consult with OOE and ODFW staff to ensure that the mitigation will benefit the same species that utilize the stream crossing habitat that was removed. All such mitigation will be on-site and in-kind, as those terms are defined by ODFW rules.

The Council finds that the proposed Category 2 stream crossings will not harm listed species, and are consistent with ODFW mitigation goals and standards, contingent upon NWN's

implementation of on-site mitigation measures and subject to the conditions recommended below, in section IV.A.7. k .

Forested wetlands. NWN, in its comments on the Proposed Order and in its revised PMP, dated February 1999, provided revised estimates of the acreage of wetlands that would be affected by the 24 inch pipeline. A total of about 0.83 acres of Category 2 forested wetlands will be directly impacted during construction. NWN proposes to use the measures discussed in sections IV.A.7.d to avoid and reduce adverse impacts to Category 2 forested wetlands, as well as those on p. 94 of the Application. NWN proposes to restore most of this disturbed forested wetland area to forested wetlands. However, because trees will not be allowed to grow to large size within a 10-foot wide area in the permanent (operational) right-of-way, this acreage of forested wetland will be restored (this is, "converted") to emergent wetland. NWN proposes to compensate for this loss of the "forested" aspect of these wetlands by enhancing at least an equivalent acreage of degraded wetland habitat (by planting trees to restore a tree canopy) in the watershed in which the impact occurs. This proposal is discussed in greater detail in section IV.A.7.d and in the February 1999 PMP.

Specifically, construction will directly impact a total of about 0.570 acre of category 2 forested wetlands in the Nehalem River drainage. Of this area, about 0.555 acre will be restored to forested wetlands by replanting native trees and shrubs in the permanent ROW (beyond the 10-foot wide area directly above the pipeline). The remaining 0.015 acre will be restored (converted) to emergent wetland by replanting with a mixture of native wetland species. In the Dairy Creek drainage construction will directly impact a total of about 0.260 acre of category 2 forested wetlands. Of this area, about 0.225 acre will be restored to forested wetlands by replanting native trees and shrubs in the permanent ROW (beyond the 10-foot wide area directly above the pipeline). The remaining 0.035 acre will be restored (converted) to emergent wetland by replanting with a mixture of native wetland species (see Table 1, February 1999 PMP).

Scrub-shrub wetlands. A total of about 0.40 acres of scrub-shrub wetlands will be directly impacted due to vegetation removal from the construction right-of-way. This acreage will be converted from scrub-shrub to emergent wetlands, at least until woody shrub vegetation regenerates in the disturbed area. NWN proposes to use the measures discussed in section IV.A.7.d to reduce adverse impacts to scrub-shrub wetlands (also Application page 94). Because large shrubs will not be allowed to grow within a 10-foot wide area in the permanent (operational) right-of-way, this acreage of scrub-shrub wetland will be restored (this is, "converted") to emergent wetland. NWN proposes to compensate for this loss of the "scrub-shrub"aspect of these wetlands by enhancing at least an equivalent acreage of degraded wetland habitat (by planting native shrubs) in the watershed in which the impact occurs. This proposal is discussed in greater detail in section IV.A.7.d and in the February 1999 PMP.

Specifically, construction will directly impact a total of about 0.380 acre of category 2 shrub-scrub wetlands in the Nehalem River drainage. Of this area, about 0.353 acre will be restored to shrub-scrub or forested wetlands by replanting native trees and shrubs in the permanent ROW (beyond the 10-foot wide area directly above the pipeline). The remaining 0.027 acre will be restored (converted) to emergent wetland by replanting with a mixture of native wetland species. In the Dairy Creek drainage construction will directly impact a total of about 0.020 acre of category 2 scrub-shrub wetlands. All of this area will be restored to scrub-shrub or forested wetlands by replanting native trees and shrubs in the permanent ROW, because all of this area will be beyond the 10-foot wide area directly above the pipeline (see Table 1, February 1999 PMP).

Emergent wetlands. A total of about 1.22 acres of Category 2 emergent wetlands will be directly impacted by construction. About 1.21 acres in the Nehalem River drainage and about 0.01 acres in the Dairy Creek drainage. NWN proposes to use the measures in section IV.A.7.d to reduce adverse impacts to emergent wetlands (see Application, page 94). In addition, NWN proposes to restore these areas to emergent wetlands as discussed in section IV.A.7.d. NWN estimates these areas will be restored to emergent wetlands within about one year following construction. ODFW concurs with this approach.

The Council finds that the proposed Category 2 wetlands crossings will not harm listed species, and are consistent with ODFW goals, contingent upon NWN's implementation of mitigation measures and subject to the conditions recommended in section IV.A.7. k.

Category 3 Habitat.

NWN originally proposed to clear approximately 270 acres of Category 3 Habitat for the construction right-of-way (Dames & Moore e-mail to Meehan, OE, 1/7/99). This number included about 37 acres of coniferous forest; 22 acres of mixed conifer and deciduous forest; one acre of deciduous forest (that does not act as a riparian buffer on Category 1 streams); 65 acres of young coniferous forest; 46 acres of forest clear-cuts; zero acres of scrub-shrub; 28 acres of pasture; 39 acres of agricultural crop areas; and 31 acres of grassy corridors. These acreages were based on the length of the route that was initially proposed by NWN. The conditioned pipeline expansion, which terminates north of the Dairy Creek valley, is about ten miles shorter than the route originally proposed by NWN. Therefore, the acreages, especially for pasture and agricultural crop lands will be less than those given.

The conditioned route also includes about three acres of category 3 emergent wetlands (that do not provide high-quality habitat because of their small size or location within a pasture or agricultural area) and 33 small-sized tributary streams (that do not provide high quality fish habitat). OOE staff and ODFW staff have reviewed this classification and agree that NWN has correctly classified these portions of the right-of-way.

In upland (that is, non-riparian or wetland) forested areas, construction will "convert" forested habitat to an open, grassy corridor. ODFW considers this to be acceptable out-of-kind mitigation. In clear cut, pasture and most agricultural areas, NWN will restore habitat to near its pre-construction condition. ODFW considers this to be acceptable in-kind mitigation.

NWN proposes to use the measures discussed in section IV.A.7.d to reduce adverse impacts to emergent wetlands, as well as those in Application, page 94. NWN estimates these areas will be restored to emergent wetlands within about one year following construction. ODFW concurs with this approach.

NWN has agreed to flume stream flow during construction at all Category 3 crossings at which water is flowing at the time of construction. NWN will also use the measures discussed in section IV.A.7.d to minimize adverse impacts to these streams during construction and restore stream beds and banks following construction. ODFW believes these measures are consistent with its mitigation rules, but recommends the additional conditions found in section IV.A.7.e. However, the loss of riparian trees at category 3 stream crossings still requires clarification. NWN's February 19, 1999 comments and PMP appear unclear as to whether or not NWN proposes to replant trees which are removed during construction. The revised information in the February 1999 PMP, Table 2, indicates that the conditioned pipeline expansion would affect 0.74 acres of riparian tree buffer at a total of 17 category 3 stream crossings (0.68 in the Nehalem

drainage and 0.06 in the Dairy Creek drainage). Of this, all but 0.06 acres (crossings 27, 43 and 44) could be replaced within the ROW. OOE recommended that NWN replant trees within the ROW at those category 3 stream crossings where trees are removed during construction. The Council concurs.

The ODFW standard for Category 3 habitat may be summarized as "no net loss; mitigation need not be in-kind or on-site." The Council finds that the NWN's proposed mitigation measures, as supplemented by the ODFW recommendations described in section IV.A.7.e, and those in section IV.A.7.k, meets this standard for areas that are classified as Category 3 Habitat.

Category 4 Habitat.

The Council finds that adverse impacts on Category 4 habitat areas will be insignificant due to the existing conditions of these areas.

d. Mitigation Proposed by NWN

This section summarizes the proposals made by NWN in its application for amendment to the site certificate and the revised Preliminary Mitigation Plan (PMP) for the project, dated February 1999. The mitigation techniques include techniques for minimizing impact (minimization techniques) and additional mitigation strategies (restoration and compensation) to be undertaken to insure consistency with the ODFW standard and with applicable Division of State Lands administrative rule requirements for removal or fill activities in wetlands.

NWN proposes mitigation measures in the following priority: avoidance, minimization, restoration, and compensation. NWN proposes measures to minimize impacts where practicable, restore areas that are disturbed to the extent practicable, and compensate for wetlands and riparian areas that cannot be restored.[15]

Minimization Techniques

NWN's application and revised PMP contain the measures listed below. OOE has reorganized and revised the language of some of these measures:

1) To the extent possible, construction through wetlands and streams will occur when water levels are low. River crossings in category 1 and 2 habitat will take place during ODFW-approved "in-water work times" which are periods of low flow (July 15 – August 31 in the Nehalem River basin and July 1 – September 30 in the East Fork Dairy Creek watershed) before adult anadromous salmonids return to their spawning beds and after the emergence of salmonid fry from the gravel. To the extent possible, river crossings in category 3 habitat will also take place during these ODFW-approved in-water work times. However, NWN may, with the concurrence of OOE and ODFW staff, perform in-water work in category 3 habitat prior to the ODFW-approved in-water work times. Wetland crossings will take place during drier times of the year (April to late summer). (NWN 2/19/99; PMP 2/99)
2) Where wetlands and streams must be crossed, the pipeline has been routed through the least sensitive portions of the wetland or stream if it was feasible. The scrub-shrub and forested portions of wetlands and riparian areas have been avoided to the greatest extent possible. Pipeline construction impacts to wetlands and streams will be minimized by using the narrowest possible construction corridor, and no more than 30 feet in width (except for a 60 foot construction corridor at wetlands 060428B, 050403A, and 040436B) and by constructing

[15] See generally Application, pages 92-96, which lists NWN's proposed construction techniques, whether for wetlands or for stream crossings, and the revised PMP, especially pages 8-13.

during a time of year when the resources (i.e., nesting or migrating waterfowl or fish) are either not present or less vulnerable.[16]

3) A fish biologist will be present during flume installations at fish-bearing stream crossings to net and release downstream any fish stranded between the upstream and downstream diversion dams. (PMP 2/99)

4) Trenched stream crossings will be completed quickly and temporary steam crossing structures will be removed promptly after use to avoid blocking fish migration during seasons when fish movement normally occurs. NWN has agreed, and shall be required to use flume and diversion methodology as described in its USCOE permit application at all stream crossings that contain flowing water at the time of construction. NWN shall ensure that fish passage consistent with ODFW standards and criteria will be provided at all fish-bearing streams that contain flowing water at the time of construction.

5) Clay trench plugs will be used to prevent diversion of subsurface water from wetlands. Trench plugs will be installed at each end of wetland crossings to prevent diversion of subsurface water from wetlands and avoid changes to wetland hydrology. An environmental monitor will inspect the pipeline trench to check for impermeable soil layers that may be penetrated during trenching. If impermeable layers are found in the trench, they will be avoided where this is possible, or repaired with clay plugs after the pipe is in place. (PMP 2/99)

6) Streambanks will be stabilized and revegetated as soon as practical after construction is completed.

7) In wetlands and riparian areas, vegetation that must be removed will be cut at ground level, leaving the root system intact. Pulling tree stumps and associated grading activities will be limited to those tree stumps that would directly interfere with trenching, pipe installation and backfill. (PMP 2/99)

8) Turbid water that is pumped from the pipeline trench during construction will be routed to temporary surface water detention facilities prior to discharge.

9) Along with other temporary erosion and sedimentation controls, filter fencing and straw bales will be used during construction to minimize sedimentation in wetlands and streams and to deter construction equipment operators from venturing further than absolutely necessary into sensitive areas. Effective sediment barriers will be constructed at approaches to stream channels. (PMP 2/99)

10) All construction equipment will be refueled at least 100 feet from water bodies or wetland boundaries.

11) All equipment will be inspected and cleaned prior to entering a wetland or stream.

12) Matting will be used where this is necessary to support construction equipment in wetlands. Heavy construction equipment may not be required to work from construction mats in wetlands that are farmed, grazed or dry enough to support the equipment. In the event that matting is necessary, all construction activities will be carried out from the matting. Equipment will not be allowed in the wetland off the mats, at any time. The mats will be

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[16] The conditioned pipeline will not cross wetlands 020322E, 020322A and 030333B because it will terminate north of Dairy Creek valley.

inspected prior to placing in the wetland and mats with foreign material will not be used. (PMP 2/99)

13) Pipe will be welded together in sufficient lengths to cross each wetland and stream prior to lowering the pipeline into the trench.

14) Grading will not occur in wetlands, and construction techniques that minimize the compaction and mixing of wetland soils will be utilized.

15) The upper 12 inches of topsoil will be removed, stored separately from the subsoils that are excavated, and protected throughout construction. Each of these materials may be stockpiled in adjacent upland areas. Topsoil will be returned to the trench surface after construction.

16) In wetlands and riparian areas, plants and their root stocks will be removed with the topsoil, stored separately from the subsoil, and replaced on top of the backfilled pipeline trench along with the topsoil. This method of revegetation in wetlands has been successful for NWN during previous pipeline construction projects.

17) At a minimum, all spoil will be contained within sediment filter devices.

18) Any excavated soil remaining as excess material after backfilling of the pipeline trench in wetlands or riparian areas will be deposited in upland areas away from wetland and riparian areas. (PMP 2/99)

19) The materials removed from the trench below the topsoil level may also be stockpiled in adjacent upland areas. However, these subsoils will not be placed on top of, nor mixed with, the topsoil previously segregated.

20) Two environmental inspectors, one hired by the construction contractor, and one by NWN, will be on site every day during construction. These inspectors will ensure compliance with the goals and standards of the mitigation plan that is approved by OOE in consultation with ODFW. They will supervise site preparation before pipeline installation, pipeline construction and restoration activities after construction.

The Council authorizes OOE, after consultation with ODFW, to impose each of these measures as conditions to be used as appropriate.

Restoration Techniques

NWN proposes the following methods to restore wetlands and riparian areas that are disturbed during construction (PMP pages 11-12; NWN 2/19/99).

1) Where trenching occurs through open water, emergent, and scrub-shrub wetlands, soils and vegetation will be replaced. Forested wetlands disturbed by trenching will be replanted with native trees and shrubs, except in the 10-foot wide maintenance corridor. Trees that are removed during construction will be placed in streams and wetlands as woody debris, and shrubs will be planted to provide immediate shade. The method to control invasive vegetation will be determined by the extent of the problem and whether or not the species is on the state noxious weed list[17]. In all cases, equipment will be cleaned before entering a wetland. If no noxious weeds are present in the wetland before construction, then any weeds present after construction will be hand pulled during the first growing season. (PMP 2/99)

[17] The PMP notes that reed canary grass, which is extremely invasive in disturbed areas, is not on the state noxious weed list (ODA 1998).

2) Wetlands and riparian areas will be replanted as soon as practicable. Where appropriate, wetland vegetation will be stockpiled by heeling in the roots in wet mulch and then re-planted in the wetland immediately after construction. Nursery stock or an ODFW approved native seed mix may be used to revegetate wetlands dominated by native vegetation if it is not possible to revegetate wetlands with the existing rootstock. In all cases, native vegetation and ODFW-approved, certified weed-free seeds will be used.

3) If temporary erosion control is necessary until native plans become reestablished, erosion prevention techniques and sediment control measures will be used as described in the Washington County Erosion Control Plans Technical Guidance Book, dated February 1994 (WCECP 1994). Control measures may include temporary sediment fences (section 3.3.2), straw bale sediment barriers (section 3.3.3), straw mulch (section 3.3.7), sediment traps and ponds (section 3.3.10), and temporary interceptor dikes and swales (section 3.3.11). (PMP 2/99)

4) In streams with gravel bottoms, appropriate sized gravel from local sources will be used to replace any stream gravels that are lost as a result of construction. (PMP 2/99)

5) Large woody debris at stream and wetland crossings will be replaced once construction is complete in the affected wetland or stream. Large woody debris created during construction clearing activities in riparian and wetland areas will be used for habitat enhancement in riparian and wetland areas. Trees that are removed from riparian areas and wetlands during construction will be placed in streams and wetlands as woody debris, and shrubs will be planted to provide immediate shade. Guidelines from *A Guide to Placing Large Wood in Streams* (ODF and ODFW 1995) will be used when placing large woody debris in streams. (PMP 2/99)

6) Areas on slopes above wetlands that are cleared for construction will be covered with mulch, matting, or hydroseeding and replanted to restore vegetative cover and to prevent soil erosion and sedimentation in the wetlands. Sandbag installation as shown in Figure 1 to the revised PMP will be used for erosion control within the trench on steep slopes.

7) Upland habitats disturbed by construction will be reseeded with an ODFW approved seed mix.

The Council authorizes OOE, after consultation with ODFW, to impose each of these measures as conditions to be used as appropriate.

Compensation Techniques

NWN proposes to compensate for conversion of forested and shrub-scrub wetlands to emergent wetlands and loss of vegetation in high quality riparian areas by a combination of restoration of the disturbed wetlands and riparian areas (as described above) and enhancement of other degraded wetland and riparian areas currently dominated by grasses and forbs (PMP pages 12-13).

Forested wetlands: Disturbance impacts to forested wetlands will be mitigated by both:

- restoration of the disturbed construction corridor to forested wetland (beyond the 10 foot wide maintenance corridor) and to emergent wetland (in the 10 foot wide maintenance corridor); and
- enhancement of degraded emergent wetland areas near the project area to forested wetland to compensate for conversion of forested wetland to emergent wetland within the 10 foot wide maintenance corridor.

Scrub/shrub wetlands: Disturbance impacts to scrub-shrub wetlands will be mitigated by both:

- restoration of the disturbed construction corridor to scrub-shrub wetlands (beyond the 10 foot wide maintenance corridor) and to emergent wetland (in the10 foot wide maintenance corridor), and
- enhancement of degraded emergent wetland areas near the project area to scrub-shrub or forested wetland to compensate for the conversion of scrub-shrub wetland to emergent wetland within the 10 foot wide maintenance corridor.

Emergent wetlands:[18] Disturbance impacts to emergent wetlands will be mitigated by restoration of the disturbed construction corridor to native emergent wetland, where wetlands are dominated by native vegetation before construction. Pasture or agricultural wetlands will be restored as specified by the landowner for continued use as pasture or agricultural land. Other emergent wetlands dominated by non-native or invasive plants (such as reed canary grass) will be restored to pre-construction conditions and equipment will be cleaned before entering other areas to avoid spreading these plants to other areas.

Riparian areas: Disturbance impacts to riparian areas will be mitigated by restoration of the disturbed construction corridor to pre-construction conditions except where trees must be removed and cannot be replanted within the 10 foot wide maintenance corridor. The permanent loss of trees in the maintenance corridor at category 1 and 2 streams will be mitigated by planting shrubs along the stream bank (both within and outside the maintenance corridor) and planting habitat trees in agreed upon nearby locations in the riparian buffer outside the construction corridor. Trees that are removed during construction will be placed in streams as woody debris.

Contingency plans: For those restoration or enhancement areas that do not meet the performance standards, additional measures (such as replanting) will be taken to meet the performance standards, or additional replacement will be provided to equal the unsuccessful restoration or enhancement area.

In summary, NWN proposes to compensate for:

1) the conversion of about 0.05 acres of forested wetlands to about 0.05 acres of emergent wetlands (as a result of the permanent or long-term loss of trees within the 10 foot wide maintenance corridor within the pipeline right-of-way) by enhancing at least 0.05 acres of degraded emergent wetland habitat to forested wetlands;

2) for the conversion of about 0.027 acres of scrub-shrub wetlands to about 0.027 acres of emergent wetlands (as a result of the permanent or long-term loss of trees and woody vegetation within the 10 foot wide maintenance corridor within the pipeline right-of-way) by enhancing at least 0.027 acres of degraded emergent wetland habitat to scrub-shrub and forested wetlands; and

3) for the permanent or long-term loss of trees in Category 1 and 2 riparian areas (as a result of the permanent or long-term loss of trees within the 10 foot wide maintenance corridor within the pipeline right-of-way) by enhancing at least an equivalent amount of riparian habitat at the crossing or on the same stream in proximity to the crossing.

The Council authorizes OOE, after consultation with ODFW, to impose each of these measures as conditions to be used as appropriate.

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[18] OOE notes that because NWN proposes to restore all disturbed emergent wetlands back to emergent wetlands, this "compensation technique" is more properly a "restoration technique."

e. Mitigation Recommended by ODFW

OOE staff consulted with ODFW staff in reviewing NWN's proposal. In the course of their review, ODFW staff suggested conditions adding to or refining the mitigation techniques proposed by NWN. OOE has modified the language of some of these recommendations and combined some recommendations for this discussion.

General Recommendations:

1. Trees should be planted near stream crossing sites to maximize stream shading and low growing shrub species should be allowed to remain within the maintenance corridor along the stream.
2. Mitigation for impacts to Category 3 habitats may be on-site or off-site. Where possible, we recommend on-site measures to maintain/enhance water quality, nutrient cycling, and soil stabilizing functions.
3. Woody debris structures should be placed instream to compensate for the short-term loss of woody debris recruitment (due to the cleared maintenance corridor). We recommend a minimum of 1 structure for every 40 feet of managed streambank. A structure should consist of at least 2 pieces of large woody debris. Woody debris dimension, structure design and placement should conform to criteria outlined in a A Guide to Placing Large Wood in Streams, May 1995 (Oregon Department of Forestry and Oregon Department of Fish and Wildlife) or other comparable documented criteria.
4. Agreements to protect mitigation areas for at least the life of the site certificate should be in place and include written verification from the land owner prior to disturbance of the areas for which the mitigation is required are disturbed.
5. Regarding erosion control and stormwater treatment, standards should include: implementing techniques to maintain any discharge water, including stormwater run-off, within the ODEQ turbidity benchmark of 10% background levels; a rainy day work stoppage policy; and implementation of a daily turbidity monitoring program. These standards should be applied to any new road construction, the construction right-of-way, and staging areas.
6. All heavy equipment should work from construction mats in wetlands, except where the wetlands are farmed or grazed or dry and firm enough to support construction equipment (NWN 2/19/99).
7. Construction staging areas should be located in uplands and clearly marked with signs or temporary fencing. The location of staging areas should be made available for review by reviewing agencies (OOE and ODFW).
8. Equipment refueling should occur a minimum of 100 feet from any wetland or stream channel and within a designated area. The refueling station should be equipped with appropriate hazardous spill containment/clean-up materials.
9. Water blocks within the pipeline trench should outfall to the same drainage where the flow is intercepted and should not cause erosion.

Wetlands

10. Any trees felled for wetland crossings should remain within the wetland to provide wildlife habitats.
11. Clay barriers should be installed on each side of any wetland crossing site.

12. For any stream trenching, flows should be maintained around the site at all times. If the crossing requires more than 1 day to complete, appropriate methods to allow upstream and downstream fish passage for all life stages should be implemented.
13. Trees felled within the riparian area should be used on-site for instream habitat structures. If possible the trees should be pushed over to maintain the root ball with the tree trunk.
14. Where restoration of wetland habitat value is not possible due to pipeline alignment, the applicant should replace that habitat value by enhancing degraded wetlands that are capable of supporting the proposed enhancement.
15. Mitigation for instream impacts should include the loss of stream shading and woody debris recruitment. Replacement shading could include appropriate shrub plantings within the corridor and enhancement of riparian areas outside the corridor. Mitigation for loss of woody debris recruitment should include the placement of instream woody debris structures for short-term mitigation and riparian enhancement for long-term mitigation.
16. Wetland, instream, and riparian mitigation areas should be permanently protected from future impacts by appropriate legal means such as a conservation easement or deed restriction.

Category 1 and 2 Stream Habitats

No riparian trees shall be removed for any Category 1 stream crossings except at Fall Creek (crossing number 16) . Riparian tree removal will occur at five Category 2 streams (crossings 12, 13, 18, 19 and 23, which are unnamed tributary creeks that are tributary to the Nehalem River.) Deciduous trees will be planted along these streams to compensate for tree removal at these stream crossings.

The Council authorizes OOE, after consultation with ODFW, to impose each of these requirements as conditions to be used as appropriate.

f. Mitigation Recommended by OOE in Consultation with ODFW

In its proposed order, OOE indicated that OOE and ODFW believed that NWN had done an admirable job of identifying measures to avoid and minimize impacts. But, OOE believed that NWN's proposed mitigation plan to compensate for unavoidable impacts needed to be clarified and modified in certain aspects in order to find compliance with ODFW and Council rules.

Specifically, OOE believed that three issues needed to be more clearly evaluated and addressed:

1) The loss of trees in Category 1 and 2 riparian areas and in Category 1 and 2 forested wetlands, as a result of construction.

2) The "prohibition" of medium and large trees in the pipeline ROW for the life of the pipeline, especially where the ROW crosses streams and crosses Category 1 and 2 forested wetlands.

3) An effective strategy to address the uncertainty as to whether mitigation measures, especially restoration and enhancement measures, will be successful, including performance standards to judge if measures have been successful.

NWN, in its February 19, 1999 comments on the proposed order and in its revised Preliminary Mitigation Plan (PMP) dated February 1999, responded to many of the concerns raised by OOE in the proposed order.

The February PMP provided revised estimates of the loss of trees in riparian and wetland areas as a result of construction and operation. In addition, NWN, based on further evaluation, determined that it could bore under both category 1 wetlands and all but two category 1 stream

crossings. Further, NWN determined that it could reduce the width of the "tree free" area within the permanent right-of-way at wetland and stream crossings from 30 feet to ten feet, and allow trees in the remainder of the permanent right-of-way acquired for the 24 inch pipeline. NWN further committed that it would not remove trees within the ROW that provide mitigation at designated riparian and wetland crossings, even in the event it decides to construct a further expansion of the South Mist Feeder Pipeline (Kelley, NWN, e-mail to Meehan,OE dated 3/24/99).

These measures almost completely avoid the loss of trees in category 1 riparian and wetland areas during construction, and substantially reduce the "prohibition" of trees from the right-of-way during the life of the pipeline. In addition, by allowing trees in all but a ten foot wide portion of the right-of-way at stream and wetland crossings, the proposal greatly reduces the need to rely on "off-site" mitigation, because most mitigation can take place within the right-of-way, where the impact occurs. This in turn reduces concerns about the uncertainty of the success of off-site mitigation, because less off-site mitigation will be needed.

Moreover, the conditioned pipeline expansion would terminate north of the East Fork Dairy Creek and would not enter the Dairy Creek valley. This avoids 15 waterway crossings and about 8.8 acres of wetland crossings.

For these reasons, OOE recommended, and the Council concurs, that strategies 1, 3 and 4 on page 26 of OOE's January 19, 1999 proposed order are no longer necessary. Moreover, OOE recommended that the remaining strategies 2, 5 and 6 can be properly addressed as part of NWN's Fish and Wildlife Mitigation Plan which is discussed in section IV.A.7.j and required as a condition in section IV.A.7.k of this order. The Council concurs.

In the proposed order, OOE indicated that it believed that in consultation with ODFW and other interested federal agencies, and with the cooperation of NWN, the measures discussed in section IV.A.7 can reduce the duration, areal extent and severity of potential adverse impacts to fish and wildlife habitats to levels that are consistent with the intent of the ODFW mitigation goals and standards, the Council's Fish and Wildlife Habitat standard, OAR 345-22-060, and are consistent with Executive Order 99-01 to restore salmonids and their habitat. The Council concurs with this assessment.

In addition, OOE recommended that EFSC retain flexibility in the mitigation measures that it imposes on NWN, for the following reasons. The US Army Corps of Engineers must issue a Section 404 Permit before NWN can disturb wetlands or riparian areas. Because the Oregon Coast coho salmon and the Upper Willamette River steelhead are federally listed species, the Corps must consult with the National Marine Fisheries Service in its decision process. The Corps permit may contain specific requirements for mitigation that differ from those that the Council imposes. Mitigation required under the site certificate should allow for consideration of federal requirements and for consistency with federal agency mitigation requirements, subject to the concurrence of OOE staff, in consultation with ODFW and affected federal agencies.

In addition, there is some uncertainty as to what the actual impacts of pipeline construction will be. The impacts may not be completely known until construction is well underway, or even completed. Furthermore, some potential mitigation sites may offer better opportunities than others. Moreover, the cooperation and agreement of land owners is essential to ensure that certain mitigation actions, such as tree planting and wetland enhancement, will remain in place into the future. For these reasons, flexibility is both appropriate and necessary.

Moreover, because such flexibility may need to be exercised on short notice, and because it might not involve policy decisions, but rather biological judgements and technical expertise, it might be neither practical nor necessary to require an amendment of the site certificate in order to change a condition. For these reasons, the Council imposes conditions that allow changes in the mitigation measures subject to the concurrence of OOE staff, in consultation with ODFW and affected federal agencies.

g. Operation-related Impacts

NWN identified no additional impacts to fish and wildlife that would occur as a result of operation of the pipeline. NWN will periodically inspect the ROW for evidence of gas leakage and conditions that could endanger the pipeline. NWN will maintain the ROW free of large vegetation, except at wetland and riparian crossings as described in section IV.A.7. NWN proposes to maintain the ROW using a combination of herbicides and mechanical brushing. NWN proposes to use herbicides to control Scotch broom and Himalayan blackberries on timber company property and other private property with prior approval of the land owner. NWN proposes to use herbicides that are designed for use on woody species which will not adversely affect grasses and herbaceous vegetation. NWN proposes to apply these only during the drier summer season, and they will not be used near either wetlands or streams. If woody vegetation must be removed near wetlands or streams, NWN will do so by mechanical brush cutting.

OOE staff and ODFW staff also did not identify any significant operation related impacts. The Council finds that any impacts from operation of the pipeline have been adequately considered and found to be non-significant. The Council requires, however, that NWN's proposed means of maintaining its ROW, as described above, be made a condition of the site certificate, and that there be periodic inspection of the ROW to evaluate fish and wildlife habitat conditions.

h. Retirement-related Impacts

Section IV.A.14 of this Order discusses NWN proposed plans to retire the 24 inch pipeline. NWN anticipates the pipeline will remain in service for the foreseeable future, and does not propose a date by which the pipeline will be retired. Upon retirement, NWN anticipates that it would remove all above-ground portions of the line, but leave the buried pipeline underground. NWN would purge the line of all natural gas. NWN would inspect the line for hazardous materials and remove any that are found. NWN would cut and cap the line at intervals.

OOE staff and ODFW staff also did not identify any significant impacts related to the retirement of the pipeline. The Council finds that the retirement of the pipeline is not likely to result in significant adverse impacts on fish or wildlife habitat.

i. Consistency with ODFW goals and standards and with Council's Fish and Wildlife Habitat standard

Category 1: The ODFW rules for Category 1 require "no loss of either habitat units or habitat value". Briefly stated, habitat units refer to the amount of habitat, and habitat value refers to its quality. With the clarifications and additional comments set forth in its letter of February 19, 1999 (Carla Kelley to Adam Bless), the Council finds there will be no loss of habitat units or value in Category 1 habitat.

NWN will cross all category 1 wetlands, and all but two category 1 streams by boring. This method will avoid the loss of habitat units or habitat value. The identified impacts to Category 1 Habitat are crossing 2 streams (Battle Creek and Fall Creek) and removing riparian vegetation, including trees at one stream crossing (Fall Creek).

Stream Crossings and Riparian Vegetation. With the mitigation and conditions required in this order, impacts should be short-term, limited in extent and limited in severity to the point where they would not result in harm to the listed Oregon Coast coho salmon or the Upper Willamette River steelhead, or loss of habitat units or value. Stream beds will be completely restored to conditions equivalent to pre-construction before salmon return to spawn; stream banks will be stabilized, revegetated and restored to conditions similar to pre-construction, except for loss of trees, within on year. The effects of tree loss at the Fall Creek crossing will be non-significant for the following reasons: the reduction in tree canopy, and thus, stream shading will be too small to adversely affect stream water temperatures at the crossing locations; NWN will stabilize banks as needed to compensate for the small loss of tree root systems; NWN will place the removed trees in the stream to provide woody debris within the stream; NWN will plant shrubs along the stream bank to provide shade; and NWN will plant trees in all but a 10-foot wide area within the ROW at the crossing to provide shade and long-term recruitment of woody debris.

As discussed at the beginning of section IV.A.7, the Council may consider mitigation in its determination as to whether this proposed conditioned pipeline expansion complies with its Fish and Wildlife Habitat standard (OAR 345-22-060). The Council finds that the proposed conditioned pipeline expansion, subject to the mitigation and conditions in this order, is consistent with ODFW's goal of no loss of category 1 habitat and with OAR 345-22-060(1), as interpreted by the Council.

Category 2: The ODFW rules for Category 2 require "no net loss of either habitat units or habitat value", but allow for mitigation of impacts "through reliable in-kind on-site methods to achieve no net loss of pre-development habitat units or habitat value...". The identified impacts to Category 2 Habitat are: 1) crossing five streams and removing riparian vegetation, including trees, at five stream crossings; and 2) crossing about 2.45 acres of wetlands and removing trees and woody vegetation from about 1.23 acres of wetlands (0.83 acres of forested and 0.40 acres of scrub-shrub).

Stream Crossings and Riparian Vegetation. With the mitigation and conditions required in this order, impacts should be short-term, limited in extent and limited in severity to the point where they would result in no net loss of habitat units or value and no harm to the Oregon Coast coho salmon or the Upper Willamette River steelhead. Stream beds will be completely restored to conditions equivalent to pre-construction before salmon return to spawn. Stream banks will be stabilized, revegetated and restored to conditions similar to pre construction, except for loss of trees, within on year. The effects of tree loss will be non-significant for the following reasons: the reduction in tree canopy, and thus, stream shading will be short-term and too small to adversely affect stream water temperatures at the crossing locations; NWN will stabilize banks as needed to compensate for the small loss of tree root systems; NWN will place structures in the stream as needed to compensate for the reduction in woody debris within the stream; and NWN will plant shrubs and trees in the right-of-way and vicinity of the crossing to provide stream shading and long-term recruitment of woody debris.

Wetland Crossings. With the mitigation and conditions required in this order, the emergent vegetation aspects of category 2 wetlands should be fully restored in one to two years. The loss of a small number of trees in forested wetlands as a result of construction will be mitigated by planting trees within the ROW in the same wetland. Where forested or scrub-shrub wetlands cannot be fully restored to forested or scrub-shrub wetlands due to the 10-foot wide maintenance area within the ROW, NWN will enhance an appropriate amount of emergent wetland to create forested or scrub-shrub wetland.

The Council finds the proposed conditioned pipeline expansion, taking into consideration the mitigation and conditions required in this order, complies with ODFW's rules for Category 2 Habitat, and with the Council's Fish and Wildlife Habitat standard.

Category 3: The ODFW rules for Category 3 Habitat require "no net loss of either habitat units or habitat value", but allow for mitigation "through in-kind or out-of-kind, on-site or off-site methods to achieve no net loss in the total of pre-development habitat units or habitat value...". The identified impacts to Category 3 Habitat are: 1)crossing 33 streams; 2) removing riparian vegetation, including trees at 17 stream crossings; 3) crossing about three acres of emergent wetlands, none of which would require removing trees; 4) conversion of certain habitats to other types of habitats; and 5) disturbance to certain habitats with restoration after construction to the same type of habitat (such as agricultural lands and clear cuts).

The Council finds that impacts associated with items (1), (3) and (5) are consistent with the ODFW goals and standards because the mitigation and conditions in this order require that NWN will fully restore these habitats after construction. The Council finds that impacts associated with item (4) are consistent because ODFW has determined, and the Council concurs, that the anticipated habitat conversion is acceptable "out-of-kind" mitigation. The Council finds that impacts associated with item (2) are consistent because the mitigation and conditions in this order require that NWN replant trees in the construction ROW at category 3 stream crossings, except for a 10-foot wide maintenance area.

The Council finds the proposed conditioned pipeline expansion, taking into consideration the mitigation and conditions required in this order, complies with ODFW's rules for Category 3 Habitat, and with the Council's Fish and Wildlife Habitat standard.

j. Findings

EFSC finds that conditions and mitigation requirements must allow for flexibility. EFSC finds that there is uncertainty as to what the actual impacts will be that cannot be resolved before beginning construction on the pipeline. In addition, some potential mitigation sites may offer better opportunities than others. Moreover, the cooperation and agreement of land owners is essential to ensure that certain mitigation actions, such as tree planting and wetland enhancement, will remain in place into the future. For these reasons, flexibility is both appropriate and necessary.

EFSC finds that this amended site certificate should be subject to issuance of a U.S. Army Corps of Engineers Section 404 Permit before NWN can disturb wetlands or riparian areas. If the conditions in the amended site certificate conflict with conditions imposed by the Corps permit, NWN shall consult with OOE and ODFW to resolve the conflict before beginning construction.

EFSC finds that the conditioned pipeline expansion requires a Fish and Wildlife Mitigation Plan and that it is appropriate to clearly state the goals of mitigation and the fundamental criteria which the mitigation plan must meet. EFSC finds that the goals shall be to avoid and reduce impacts to the greatest extent practicable, to fully restore affected habitats so as to achieve no loss of category 1 habitat quantity or quality and no net loss of category 2 and 3 habitat quantity and quality, and to prevent harm to the federally listed Oregon Coast coho salmon and Upper Willamette River steelhead.

EFSC finds that the Fish and Wildlife Mitigation Plan (Plan) should meet the following criteria:

1. Mitigation measures should first avoid impact to the greatest extent practicable, then reduce impacts to the greatest extent practicable, then fully restore areas where impact is unavoidable to

the greatest extent practicable, and then fully compensate for areas which cannot be fully restored;

2. Mitigation should be "in-kind" to the extent possible, and should be "on-site" to the extent possible, followed by measures that are "out-of-kind" and provide biological benefits. Mitigation measures should be applied so as to result in the greatest biological benefits. NWN must consult with OOE and ODFW if it believes that in-kind or on-site mitigation is not possible;

3. Mitigation measures must be in place as soon as practicable after the impact takes place;

4. Mitigation must be effective and protected throughout the life of the site certificate;

5. Mitigation is the responsibility of NWN;

6. The Plan must include measures to effectively control erosion and revegetate disturbed areas, including upland areas, and must address monitoring during both construction and throughout the life of the site certificate;

7. The Plan must provide a high level of confidence that the planned mitigation will actually be achieved within a reasonable period of time, including as appropriate the implementation of mitigation on a greater than 1:1 ratio.

EFSC hereby authorizes the OOE, in consultation with ODFW and responsible federal agencies, to ensure that NWN prepares and implements a Fish and Wildlife Mitigation Plan consistent with these goals and criteria. EFSC further authorizes OOE, in consultation with ODFW and responsible federal agencies, to ensure that NWN complies with the intent of the conditions and recommendations set forth above under sections IV. A.d and e, and authorizes OOE to allow specific exceptions, if in OOE's judgement specific circumstances require such flexibility and such exceptions are necessary, reasonable and consistent with the mitigation goals stated above. This delegation is authorized by, and made in accordance with, ORS 469.402.

EFSC further finds that successful implementation of mitigation required by the Plan will require periodic on-site monitoring during and after construction by qualified individuals. Therefore, EFSC requests that appropriate ODFW personnel conduct on-site monitoring during construction, and as needed throughout the duration of the site certificate. NWN shall reimburse ODFW for the costs to perform this monitoring.

EFSC finds that the proposed new 24 inch pipeline, when considered together with and subject to the mitigation requirements and conditions in this order, complies with OAR 345-22-060.

EFSC has considered the direction of the Executive Order 99-01 and finds that the executive order direction is met by the application of the Council's Fish and Wildlife Habitat standard.

k. Conditions

1. NWN shall prepare a Fish and Wildlife Habitat Mitigation Plan (Plan) consistent with the goals and criteria specified by the Council in Section IV.A.7.j of this order.
2. NWN shall not begin specified construction activities or operation, as OOE, in consultation with ODFW and interested federal agencies, determines appropriate, until OOE, in consultation with those agencies, has approved the Plan.
3. All mitigation measures proposed by NWN and listed in section IV.A.7.d of this Order are deemed commitments and shall be added as conditions to the site certificate.

4. All measures recommended by ODFW and listed in Section IV.A.7.e of this Order shall be added as conditions to the site certificate.

5. In sections of construction considered critical, work will not proceed without confirmation that OOE and ODFW have been notified at least one week in advance. This notice is required to afford OOE and ODFW the opportunity to send qualified monitoring personnel. If NWN provides timely notice, the failure of OOE or ODFW to send qualified personnel shall not prevent NWN from performing the specified work. The Fish and Wildlife Mitigation Plan shall identify those sections of construction that are considered critical.

6. NWN shall use flume and diversion methodology as described in its USCOE permit application at all stream crossings that contain flowing water at the time of construction. NWN shall ensure that fish passage consistent with ODFW standards and criteria will be provided at all fish-bearing streams that contain flowing water at the time of construction.

7. NWN shall use the wetland crossing methodology described in its USCOE permit application at all wetland crossings.

8. NWN shall not disturb wetland areas, riparian areas, or waterways until it has obtained all required section 401 and section 404 permits and approvals, including any required authorization relating to a federally-listed threatened or endangered species. If the conditions in the amended site certificate conflict with conditions imposed by the DEQ in its section 401 certification or the U.S. Army Corps in its section 404 permit, NWN shall consult with OOE and ODFW to resolve the conflict before beginning construction.

9. NWN shall maintain the right-of-way during pipeline operation using the methods described in section IV.A.7.g of this Order. At stream and wetland crossings, NWN shall not remove trees that are allowed to grow or are planted within the permanent right-of-way of the 24 inch pipeline, except for an area within five feet on either side of the centerline of the pipeline, for the life of this site certificate.

10. NWN shall be responsible for costs associated with ODFW monitoring. ODFW will monitor in an advisory capacity to OOE.

11. NWN shall bore under stream crossings numbered 2, 3, 4, 8, 20, 26, 29, 30, 34 and 35; and under wetlands numbered 060514C (at Lindgren Creek crossing), 040306B (at Kenusky Creek crossing) and 060514A (at Lyons Creek crossing).

12. NWN shall not begin construction on the 24 inch pipeline until it has obtained a 1200c Stormwater Discharge Permit from DEQ.

13. NWN shall use the measures described in its March 26, 1999 letter from M. Hayward, NWN to Meehan, OE, to respond to a release of drilling mud (bentonite) as a result of boring operations during pipeline construction.

Conclusion

The Council finds that the design, construction, operation and retirement of the proposed 24 inch expansion of the South Mist Feeder Pipeline, taking into account mitigation and subject to the conditions in the Site Certificate and the conditions stated in this order, complies with OAR 345-22-060.

8. 345-22-070 Threatened and Endangered Species

To issue a Site Certificate, the Council, after consultation with appropriate state agencies, must find that:

(1) The design, construction, operation and retirement of the proposed facility, taking into account mitigation, is consistent with any applicable conservation program adopted pursuant to ORS 496.172(3) or ORS 564.105(3); or

(2) If no conservation program applies, the design, construction, operation and retirement of the facility, taking mitigation into account, does not have the potential to significantly reduce the likelihood of the survival or recovery of any threatened or endangered species listed under ORS 496.172(2) or ORS 564.105(2).

Discussion :

Plants: No plant species listed as endangered or threatened under ORS 564.105(2) occur in the area of the proposed conditioned pipeline expansion.(R. Meinke, ODA, pers. comm. to T. Meehan, OE, Sept. 24, 1998).

Wildlife: With the possible exception of northern spotted owl (*Strix occidentalis caurina*), bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*), no wildlife species listed as endangered or threatened under ORS 496.172(3) occur in, or significantly use, the area of the proposed route. [19]

Spotted owl require mature and old-growth forest with a multi-layered canopy. Suitable habitat is extremely limited in the Oregon Coast Range due to extensive timber harvesting, forest fragmentation, and fires. The proposed pipeline route passes through agricultural lands, clear cuts, young forests and some areas of second growth forest. However, even the second growth forest areas generally do not provide habitat that is preferred by spotted owls. In addition, in forested areas the pipeline generally follows existing roads, pipeline or power line routes. Thus, construction and operation of the pipeline will not result in a loss of spotted owl habitat. Two documented spotted owl habitat areas are within one mile of the pipeline route. No owls were found in these areas during surveys conducted in the early 1990s.

Bald eagles and peregrine falcons may occasionally pass through the area of the proposed route. However, the area along the proposed route does not provide important habitat for either species. The U.S. Fish and Wildlife Service did not identify either species in its response to NWN's request for information on potential threatened or endangered species in the area.

Conclusion: The Council finds that the design, construction, operation and retirement of the conditioned pipeline expansion is not likely to significantly reduce the likelihood of the survival or recovery of any threatened or endangered species listed under ORS 496.172 or ORS 564.105(2). Other than the conditions in section IV.A.7.k of this order, no additional conditions are required.

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[19] The Council is aware that the National Marine Fisheries Service, in October 1998, listed the Oregon Coast Coho Salmon Evolutionarily Significant Unit (ESU) as a threatened species, and in March 1999 listed the Upper Willamette River steelhead as a threatened species, under the federal Endangered Species Act. This order does not consider these species under the Council's Threatened and Endangered Species Standard, OAR 345-22-070, because they have not been listed as threatened or endangered under state law, ORS 496.172. This order considers these species under the Council's Fish and Wildlife Habitat Standard, OAR 345-22-060.

9. 345-22-080 Scenic and Aesthetic Values

To issue a Site Certificate, the Council must find that the design, construction, operation and retirement of the facility, taking into account mitigation, is not likely to result in significant adverse impact to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in the local land use plan for the site or its vicinity.

Discussion:

The proposed route for the conditioned pipeline expansion does not cross any lands managed by a federal agency. However, there is federally managed land in the vicinity of the route. This land is administered by the BLM and is primarily managed for timber production under the Northwest Forest Plan. Almost all this land has a "Visual Resource Management" designation of category IV. This is the lowest category of visual protection. The plan does not identify any scenic or aesthetic values as significant or important that is within sight of the proposed pipeline route. The federal government has not designated any wild or scenic river in the vicinity of the proposed route.

Columbia County's Comprehensive Plan contains five "County Scenic Resources". The conditioned pipeline expansion will not be within the viewshed of, or visible from, any area identified by Columbia County as a scenic resource. The plan also identifies portions of Highway 47 as a state-designated scenic highway. The proposed route crosses Highway 47 several times. Construction will cause some visual impact, but this will be short-term. After construction the pipeline will be buried and will not be visible. After construction soil will be returned to the pipeline trench or transported off-site, all construction related debris will be removed, the disturbed area will be returned to nearly pre-construction contours and revegetated. For these reasons, the pipeline would not cause a significant adverse impact to Highway 47's scenic qualities.

Washington County's Comprehensive Plan identifies a scenic view in the vicinity of Red Slide Hill located in the East Fork Dairy Creek drainage several miles to the south of the conditioned southern terminus of the proposed route. The proposed right-of-way is not visible from this location because of the intervening topography. The plan also identifies a scenic feature at Big Canyon in the East Fork Dairy Creek drainage several miles south of the conditioned southern terminus of the proposed route. Big Canyon is primarily BLM land. The county plan indicates that the BLM has designated the canyon as a Natural Area but BLM staff indicated in August 1998 that that designation had been rescinded. In either case, the proposed pipeline is not likely to cause a significant adverse impact to scenic or aesthetic values in Big Canyon due to its distance from the canyon and the intervening topography.

The county plan also identifies Dairy Creek Road as a Scenic Route. The existing South Mist Feeder Pipeline generally follows this road for several miles along Dairy Creek valley. However, the pipeline is not visible as it is located underground and its right-of-way has returned to pre-construction land uses and appearance. The conditioned southern terminus of the proposed route is about one mile north of Dairy Creek Road. For this reason, construction is not likely to cause a significant visual impact to Dairy Creek Road or to Dairy Creek valley. After construction the pipeline will be buried and will not be visible. After construction soil will be returned to the pipeline trench or transported off-site, all construction related debris will be removed, the disturbed area will be returned to nearly pre-construction contours and revegetated

or, returned to cultivation. For these reasons, the pipeline will not cause a significant adverse impact to scenic values along Dairy Creek Road.

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") would have no scenic or aesthetic impacts on points south of the Bacona Blowdown Station. Impacts on points north of the Bacona Blowdown Station would be unaffected because the pipeline alignment is not changed at those points. Impacts where the pipeline will be placed in public road right-of-way to avoid land zoned for exclusive farm use will be no different from other areas where the pipeline was designed to be placed in the public road right of way. Therefore Council findings concerning compliance with this standard are not affected by the proposed condition to terminate the pipeline at the Bacona Blowdown.

Conclusion: The Council finds that the design, construction, operation and retirement of the conditioned pipeline expansion, taking into account mitigation, is not likely to result in significant adverse impact to scenic and aesthetic values identified as significant or important in applicable federal land management plans or in the local land use plan for the site or its vicinity. Mitigation proposed for the reduction of potential scenic impacts includes restoration of the pipeline corridor to pre-construction conditions, revegetation, and removal of all construction related debris. All of these steps are included in proposed conditions under the Council's Fish and Wildlife standard or Waste Minimization standard. Therefore no further conditions are required.

10. 345-22-090 Historic, Cultural and Archaeological Resources

To issue a Site Certificate, the Council must find that the construction, operation and retirement of the facility, taking into account mitigation, is not likely to result in significant adverse impacts to:

(1) Historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places;

(2) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c); and

(3) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c).

Discussion: The route of the existing 16-inch diameter South Mist Feeder Pipeline was surveyed for cultural resources in 1987 and 1988 prior to final siting and construction of the pipeline. The majority of the proposed route of the requested new 24-inch diameter pipeline is adjacent to the existing pipeline. Approximately 4.5 miles of the proposed alignment deviates from the existing 16-inch pipeline corridor (reroute areas).

Cultural resources investigations of the proposed route for the new 24-inch pipeline were conducted in May 1998. No new cultural resources were identified within the reroute areas. Eight of the sites identified during the 1987 fieldwork occur along the proposed new 24-inch pipeline route with a conditioned terminus north of Dairy Creek valley. All of these are located in the Nehalem Valley in Columbia County: 35CO41, ORCO6, ORCO5, 35CO40, 35CO38, ORCO4, ORCO3, 35CO39. Four of the sites are historic (those beginning with OR). Four of the sites are prehistoric (those beginning with 35).

The field investigations for cultural resources indicate that the proposed route for the 24-inch pipeline will likely avoid each of the eight sites.

The cultural investigation report recommends that a qualified archaeologist monitor construction activity in the areas of sites 35CO41 (because of the presence of a buried cultural deposit at that site) and 35CO39 (because of the extensive nature of the subsurface deposits at this site).

The cultural investigation report also notes that archaeological resources are known to occur in the vicinity of the proposed Nehalem River crossing near Natal. Although no archaeological resources were observed at the proposed crossing site, the area is of moderate to high archaeological sensitivity and could contain undiscovered resources. The report recommends that a qualified archaeologist be present to monitor all grading and excavation activities associated with this river crossing.

The NWN application and related materials include the following measures that the Council deems binding commitments:

1. NWN shall retain a qualified archaeologist to monitor construction activity in the areas of sites 35CO41, 35CO39 and all grading and excavation activities associated with the Nehalem River crossing near Natal.
2. NWN shall locate the 24-inch diameter pipeline as described in its application for amendment, pages 108 through 111. Specifically, NWN shall route the 24-inch pipeline as follows, unless NWN in consultation with a qualified archaeologist identifies another location which has less impact to these sites: in the vicinity of 35CO41, on the northeast side of the existing 16-inch pipeline; in the vicinity of ORCO6, on the eastern side of the highway; in the vicinity of ORCO5, on the east side of the existing pipeline; in the vicinity of 35CO40, about 150 meters southwest of the site; in the vicinity of 35CO38, on the west side of the existing pipeline; in the vicinity of ORCO4, on the north side of the existing pipeline; in the vicinity of ORCO3, immediately adjacent to the existing pipeline; in the vicinity of 35CO39, on the east side of the existing pipeline.
3. If any artifacts or other cultural materials that might qualify as "archaeological sites" or "archaeological objects" are identified during monitoring, all ground-disturbing activities in the area will cease until a qualified archaeologist can evaluate their potential significance. If the materials are potentially eligible for listing on the National Register of Historic Places or likely to qualify as archaeological sites or objects, NWN will consult with the State Historic Preservation Office (SHPO) and comply with archaeological permit requirements administered by the SHPO (currently set forth in OAR chapter 736, division 51).

Conclusion: The Council finds that the design, construction, operation and retirement of the conditioned pipeline expansion, taking into account mitigation, complies with OAR 345-22-090 The mitigation measures listed above shall be added to the site certificate as conditions. The condition to terminate the pipeline at the Bacona Blowdown Station does not adversely affect findings of compliance with this standard, because it introduces no new areas for construction and removes some areas that were previously considered.

11. 345-22-100 Recreation

To issue a Site Certificate, the Council must find that:

"the design, construction and operation of a facility, taking into account mitigation, is not

likely to result in a significant adverse impact to important recreational opportunities in the impact area. Factors that will be considered in judging the importance of a recreational opportunity include:

(1) Any special designation or management of the location;

(2) The degree of demand;

(3) Uniqueness;

(4) Outstanding or unusual qualities;

(5) Availability or rareness; and

(6) Irreplaceability or irretrievability of the opportunity."

Discussion: NWN evaluated recreation impacts within an area five miles on either side of the proposed route of the conditioned pipeline expansion. Recreation opportunities include sites and facilities identified by Columbia and Washington Counties, the Tualatin Hills Parks and Recreation District, and fishing and hunting throughout the area.

The Columbia County Forests, Parks and Recreation Master Plan identifies 20 county parks, forests, forest/parks and boat dock facilities and another 20 public and private facilities that provide recreational opportunities. Only one of these, Big Eddy Park, is within five miles of the proposed route. The proposed route follows an existing graveled private logging road on the opposite site of the Nehalem River from the park. The route does not cross land within the park or land that could be used for further park expansion. Construction of the portion of the pipeline that is closest to the park may cause short-term disturbance to park users from noise and heavy equipment. Once construction is complete, the presence and operation of the underground pipeline would have no impact on the park or its users. For these reasons, the proposed pipeline is not likely to cause significant adverse impact to Big Eddy Park.

Columbia County plans to develop bicycle trails in the future. However, pipeline construction activity will be complete by the end of 1999, several years before the County plans to develop the closest bicycle trail. The presence and operation of the underground pipeline would not affect future development of bicycle trials.

To the best of NWN's knowledge there are no existing or proposed recreation facilities in Washington County that are within five miles of any part of the proposed route.

Much of the proposed pipeline route is within a major big game habitat area. The area is used for hunting elk, deer, pheasant, grouse and bear. The project could result in a localized, short-term impact to hunting during construction, and some habitat loss or alteration over a longer term. However, the area along the proposed route does not provide recreation opportunities that are unusual or unique, and the Council does not consider these impacts to recreation to be significant.

The route of the conditioned pipeline expansion crosses the Nehalem River at two locations, East Fork Nehalem River at two locations, and a number of named and unnamed creeks. Construction could result in localized, short-term impact to fishing. However, the Council does not consider these impacts to recreation to be significant for the following reasons. NWN proposes to use directional boring to tunnel under the Nehalem River at both locations, and under East Fork Nehalem River at both locations, and may also bore under Battle Creek if suitable easements can

be arranged. This construction technique would have no adverse impact on these rivers. There is a chance that directional boring could result in a release of drilling mud into the river. This is considered unlikely, however such an event did occur in 1997 during the construction of 16-inch pipelines associated with Amendment No.4 to the Mist Underground Storage Facility. NWN mitigated that event by containing the mud within a silt fence, using suction devices to pump the mud from the contained area, and then disposing of the collected mud. NWN has committed to do the same in the unlikely event of a similar release while boring the streams associated with this project. The release ended as soon as the boring was complete. Any impacts on fishing would therefore be short term and not irreparable. This construction technique would have no adverse impact on these rivers. Construction activity at other waterway crossings will be short-term and will employ measures to prevent or minimize adverse impact. Moreover, the proposed crossing locations do not provide recreation opportunities that are unusual or unique. The pipeline will be buried below the bed of all waterways, and its existence and operation after construction is complete would have minimal adverse impact on fish habitat and on recreational fishing.

Conclusion: The Council finds that the design, construction, operation and retirement of the conditioned pipeline expansion, taking into account mitigation and subject to the conditions in the Site Certificate, complies with OAR 345-22-100. Proposed measures to reduce impact on recreational opportunities consist of the habitat restoration measures required for compliance with the Council's Fish and Wildlife standard and DSL Wetlands permit. These measures are described in detail under those standards, and necessary conditions are also included under those standards. No further conditions are required.

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") would have no impacts on points south of the Bacona Blowdown Station, and impacts on points north would not be changed because there are no other changes in the pipeline alignment. Therefore compliance with this standard is not affected by this condition.

12. 345-22-110 Socio-Economic Impacts

To issue a Site Certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, is not likely to result in significant adverse impact to the ability of communities within the study area to provide the following governmental services: sewers and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.

Discussion: NWN evaluated socio-economic impacts of the pipeline expansion on the communities nearest the proposed route including Mist, Vernonia, North Plains and Banks.

Potential providers of governmental services for the pipeline expansion include Columbia and Washington Counties. North Plains and Vernonia are the nearest incorporated cities to the route at about ten miles and three miles distance, respectively.

The pipeline expansion will require construction at the same time at several locations along the route for a nine month period from about March through about October 1999. NWN anticipates an average of about 200 workers on-site during that period, with a peak of about 250 to 300 workers during the summer months. NWN anticipates that less than half of the work force will

be from outside the area. A small percentage of these workers may bring their families with school age children. NWN estimates this would result in no more than 15 school age children.

The population of Columbia County is about 40,100 and that of Washington County is about 376,500. Even during peak construction, the expansion will not have a significant impact on the population in the area.

Sewers and Sewage Treatment: No community in the area provides sewers or sewage treatment to the existing pipeline or to the surrounding area. Contract portable toilets will be used during construction. Operation of the pipeline will not generate sewage. For these reasons, the expansion will not result in an adverse impact on local communities' sewage collection or treatment facilities.

Water: No community in the area provides water to the existing pipeline or to the surrounding area. The expanded pipeline will require water only during the construction phase for directional boring and to hydrostatically pressure test the pipeline; operation of the expanded pipeline will not require water. NWN proposes to obtain all of the water for hydrostatic pressure testing of the pipeline from the Nehalem River. For this water use, NWN must obtain a state-issued Limited Water Use License as discussed in Section IV.D.2 of this order. For these reasons the expansion will not result in an adverse impact on local communities' ability to provide water.

Stormwater Drainage: No community in the area provides stormwater management to the existing pipeline or to the surrounding area. Operation of the expanded pipeline will not produce wastewater. Construction of the pipeline will require a 1200c Stormwater Discharge Permit from DEQ. The expansion will not result in an adverse impact on local communities' ability to provide stormwater drainage.

Solid Waste Management: No community in the area provides solid waste management services to the existing pipeline or to the surrounding area. Construction of the pipeline will not result in a large volume of solid waste that requires disposal. The soil removed during trenching will be backfilled into the trench. NWN will contract with local service companies to remove and dispose any miscellaneous solid waste from construction. Operation of the pipeline will not generate solid waste. For these reasons, the expansion will not result in an adverse impact on local communities' ability to provide for solid waste management.

Housing: NWN estimates that construction will require about nine months (from about March through about October 1999) and that peak construction will require about 250 to 300 workers. NWN anticipates that less than half of the work force will require temporary housing. There are communities within a commuting distance from the northern part of the route, such as Vernonia, Clatskanie and St. Helens in Oregon, and Longview and Kelso in Washington, that together have several hundred motel rooms. The Hillsboro and Forest Grove areas, which are near the southern end of the route, have over 1,000 temporary housing units. In addition, NWN anticipates that up to half of the construction workers from outside the area will bring travel trailers and recreational vehicles that can be parked at local parks established to accommodate this type of mobile housing. For these reasons, the expansion is not likely to result in an adverse impact on local temporary housing.

Traffic Safety: The only impact to traffic will be during construction. Operation of the pipeline will require minimal additional traffic. During construction, NWN estimates 250 to 300 construction workers resulting in up to 600 vehicle trips (300 round trips) per day. NWN estimates other construction-related traffic, including equipment delivery and NWN personnel,

will total up to 200 additional vehicle trips per day. NWN estimates the maximum total construction-related vehicle trips on local roads will be 800 per day. Because construction will take place simultaneously along different sections of the route, construction-related traffic will be scattered along the route and will not be concentrated on one area. NWN stated that it will attempt to reduce the number of vehicle trips by shuttling groups of workers to the job site in vans.

The principal roads that will be used to access the pipeline route during construction are State Highways 47 and 202, and county roads including Scappoose-Vernonia Highway in Columbia County, and Bacona Road and Dairy Creek Road in Washington County. Oregon Department of Transportation (ODOT) statistics indicate that average daily traffic on Highway 47 was about 800 vehicles per day in 1995 and on Highway 202 about 870 vehicles per day in 1995. The capacity of these highways according to ODOT is about 50,000 to 75,000 vehicles per day. According to the Columbia County Engineer the Scappoose-Vernonia Highway can handle 48,000 vehicles per day (2,000 per hour). The county's 1998 traffic counts show average daily traffic of about 660 vehicles per day. According to the Washington County Department of Land Use and Transportation Dairy Creek Road can handle 14,400 vehicles per day (600 vehicles per hour) and had average daily traffic of about 1,230 vehicles per day in 1998. Bacona Road is a lightly traveled, rural road for which Washington County does not take traffic counts.

Construction will require some lane closures on Highway 47. Street closures will be of short duration (10 minutes or less) and will be avoided to the extent practicable. Flaggers and pilot cars will be used to minimize traffic delays.

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") would not cause any delays on Dairy Creek Road because there would be no construction there. However, the Council has imposed a condition that the 24-inch pipeline utilize the public road right of way in the PA-38 zone in Columbia County. This condition could increase the traffic delays on Highway 47. Flaggers and pilot cars would remain the methods used to minimize delays.

For construction within the public right-of-way for all state highways, the following practices, provisions or standards apply:

ODOT's General Provisions for Road Approach Poleline, Pipeline, and Buried Cable Permits require that "The work area during construction of maintenance performed under the permit provisions shall be protected in accordance with the current Manual on Uniform Traffic Control Devices for Streets and Highways, US Department of Transportation, and the Oregon Department of Transportation supplements thereto."

"Contractor to provide a detailed traffic control plan for each phase of the work, showing signs and cones. Plans to be submitted for approval by the District Manager or representative in advance of construction or maintenance."

From Standards Specifications for Highway Construction – 1996, Oregon Department of Transportation, Section 00220 – Accommodation For Public Traffic applies. Specifically it states, "Do not stop or hold vehicles more than 20 minutes, block driveways, intersections or connections for more than two hours unless otherwise authorized in writing. Allow emergency vehicles immediate passage."

NWN has committed to fully comply with these ODOT requirements, and this commitment shall be added as a condition to the site certificate.

Given the relatively small volume of construction-related traffic in comparison to the available capacity of the primary roads that will be used during construction, the conditioned pipeline expansion is not likely to have a significant adverse impact on traffic safety.

Police and Fire Protection: The Columbia County Sheriff's Department, the City of Vernonia and the Washington County Sheriff's Department provide police protection for the area. These departments indicate that the 250 to 300 person construction work force does not create any significant concerns and that neither construction nor operation of the expanded facility would pose problems for law enforcement. (application, exhibits 45A and 45B)

The Mist-Birkenfeld Rural Fire Protection District, the Vernonia Rural Fire Protection District, the Forest Grove Fire and Rescue, the Tri-City Rural Fire Protection District (in Banks) and the Washington County Fire District Two provide fire protection services in the area of the proposed pipeline route. None of these indicated concern about the proposed expansion of the pipeline. NWN believes the expansion poses little additional fire hazard in the area. NWN has operated its existing underground gas storage facility and the South Mist Feeder Pipeline for about ten years without causing any fires or other hazards. The pipeline will be designed, constructed and maintained in accordance with applicable requirements of the U.S. Department of Transportation as set forth in 49 Code of Federal Regulations (CFR) part 192. The proposed pipeline route avoids, wherever feasible, geotechnical hazards such as areas prone to landslides. The pipeline will have safety features including isolation valves and relief valves. NWN's trained personnel monitor the existing pipeline from Miller Station. The new pipeline will be similarly monitored. For these reasons, the expansion is not likely to result in a significant adverse impact on the ability of local communities to provide police or fire protection. Potential delays caused by construction will not affect ambulances, fire or police protection because a condition has been added to the site certificate requiring compliance with ODOT practices, provisions and standards which include a requirement to allow immediate passage to emergency vehicles.

Health Care: Hospitalization needs for the area are currently provided by hospitals in the Portland area, Astoria and Longview, Washington. NWN believes that the relatively small construction work force should place few additional demands on health care facilities that serve the area. The Mist-Birkenfeld Rural Fire Protection District has a Multiple Casualty Incident Plan in place. It has supplies and materials needed to support the plan and these resources are available for the pipeline expansion project. The Tri-City Rural Fire Protection District in Banks states that Metro West Ambulance and Lifeflight will respond to medical incidents in the part of Washington County that is served by the district. For these reasons, the expansion is not likely to result in significant adverse impact to the ability of communities in the area to provide health care.

Schools: NWN anticipates that the pipeline expansion could result in up to 15 additional school age children during the period of construction. NWN believes that most construction workers with families will locate in areas where housing is available. These are generally areas that have schools of sufficient size to accommodate additional students. Moreover, it is unlikely that all school aged children would enroll in the same school. For these reasons, the pipeline expansion is not likely to cause a significant adverse impact on local schools.

Conclusion: The Council finds that the design, construction, operation and retirement of the conditioned pipeline expansion, taking into account mitigation and subject to the conditions in

the Site Certificate and the conditions stated in this order, complies with OAR 345-22-110. This recommendation is based in part on NWN commitments in the application. However, all of these commitments are already required by rule or by conditions under the EFSC structural standard, soil standard, waste minimization standard, or public safety standards of OAR 345 Division 24. As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") would not have any impact on the communities' ability to provide essential services in Washington County because the only area where the pipeline would enter Washington County is the forested land north of Dairy Creek road. The conditioned pipeline expansion would follow the same alignment in Columbia County, and therefore would not introduce impacts different from those already analyzed in the application. The condition requiring use of public road right of way in the PA-38 zone in Columbia County may increase traffic delays during construction. However, NWN has committed to ensuring that in no case will police, fire or ambulance be delayed at all. NWN has also committed to compliance with the Oregon Department of Transportation Standards and Specifications for Highway Construction. This commitment shall be included as a condition.

13. 345-22-120 Waste Minimization

This standard provides that:

(1) To the extent reasonably practicable, the applicant shall minimize generation of solid waste and wastewater in the construction, operation, and retirement of the facility, and when solid waste or wastewater is generated, recycle and reuse such wastes.

(2) To the extent reasonably practicable, the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility must have minimal adverse impact on surrounding and adjacent areas.

Discussion: The pipeline will not produce solid or liquid waste during operation. Waste production will be chiefly during construction and will consist of scrap steel, welding rod and erosion control materials such as straw bales and silt fencing. NWN will collect the scrap steel and welding rod and transport them to a recycling facility. Silt fencing material and straw bales will be transported to a local landfill.

The only consumptive use of water for the construction phase would be one time uses of water for directional drilling and for hydrostatic pressure testing of the pipeline. In Washington county, NWN has arranged to discharge water from pressure testing to a farmer's retention pond, although that might not be used due to the pipeline termination at the Bacona Blowdown Station. All water discharge from the pressure testing will meet DEQ WPCF permit requirements, which are designed to minimize adverse impact on the surrounding areas.

Conclusion: The proposed pipeline expansion will generate minimal solid waste and waste water. NWN will reuse and recycle such wastes, to the extent practicable. In addition, accumulation, storage, disposal and transportation of waste from the Project will have a minimal adverse impact on surrounding and adjacent areas. NWN has committed to continuing the waste minimization and recycling program described in Amendment No.4 to the Mist Underground Storage site certificate. Because that program is not described in the South Mist Feeder site certificate an identical condition shall be added here. The Council finds that the proposed pipeline complies with this standard, subject to the conditions recommended in Section VI.B of this order. The

conditioned pipeline expansion will not affect this finding because the condition to terminate the pipeline at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM will decrease the amount of construction materials but will not introduce construction materials different from those identified in the application.

14. 345-22-130 Retirement

To issue a Site Certificate, the Council must find that the site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following facility retirement.

Discussion: NWN does not foresee retirement of either the underground storage facility or the South Mist Feeder pipeline. However, the Application describes steps NWN would take if the pipeline, and specifically the 24 inch expansion, were retired.

NWN would inspect pipelines for hazardous materials and would remove any hazardous materials. The above ground portions of the pipelines would be removed and the remaining portion would be cut and capped in five mile increments and at each end. NWN would purge the pipeline with nitrogen to ensure that all natural gas was removed. We concur that this method would adequately restore the site to a useful, non-hazardous condition and would cause less disruption to the environment than removing the lines. NWN estimates that the above steps would cost approximately $66,000. We concur with this estimate.

The Mist Underground Storage Facility site certificate includes a condition that NWN revegetate the pipeline right of ways, if necessary, to prevent erosion and encourage habitat development. The Council shall require a similar condition shall be added to the South Mist Feeder site certificate.

Conclusion: The Council finds that the site can be restored to a useful, non-hazardous condition. Conditions to restore the site, remove hazardous materials, and revegetate pipeline right-of-way following retirement shall be added to the site certificate as listed in Section VI.B of this. The conditioned pipeline expansion will not affect any assumptions or findings of compliance with this standard because it does not change the method of retirement from that described in the application.

B. EFSC Need for Facility Standard

Under the need for facility standard (OAR 345-023-0020(1)), the Council must find that the facility is "needed." The Council accords a presumption of need if the capacity of the proposed facility is identified for acquisition (through purchase or construction) in a least cost plan approved by the PUC. Exhibit 47 of the application contains excerpts from NWN's Integrated Resource Plan for 1995 and associated briefings of OPUC. Looping of the South Mist Feeder is part of the Two Year Action Plan In fact, the South Mist Feeder looping, originally scheduled for 1996, is the first item listed in NWN's Long Range Projections of infrastructure pipeline projects as necessary to accommodate future growth. OPUC acknowledged the 1995 plan in the Order No. 96-219. (application Exhibit 21.)

Since the South Mist Feeder looping is part of a least cost plan acknowledged by the OPUC, it meets the need for facility standard under the criteria specified in OAR 345-023-0020(2).

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") will provide NWN with less transmission capacity than what was described in the application.

However, the conditioned pipeline expansion will be capable of moving approximately 191 million cubic feet per day (MMcfd) from Miller Station to Rock Creek, as opposed to 246 MMcfd for the expansion as originally proposed. This shortening of the pipeline expansion will reduce the capacity of the line approximately 55 MMcfd. The shorter line still meets the short-term needs identified in the PUC's integrated resource plan process. Therefore the conditioned pipeline expansion remains in compliance with the EFSC Need for Facility Standard.

C. EFSC Public Health and Safety Standards in OAR 345 Division 24

1. OAR 345-24-030 Public Health and Safety

This standard applies only to the Mist Underground Storage facility.

2. OAR 345-24-060 Public Health and Safety Standards for Pipelines

This standard has 5 parts, as follows:

> "(1) This rule applies to all pipelines under Council jurisdiction.
>
> (2) Pipelines shall be constructed in accordance with the requirements of the U.S. Department of Transportation as set forth in 49 CFR part 192, in effect as of the date of this rule.
>
> (3) A pipeline shall be designed so that noise resulting from operation of compressor station and other related and supporting facilities shall not violate standard specified in OAR 340 Division 35, in effect as of the date of this rule.
>
> (4) A pipeline shall have mechanical structures that allow the pipeline to be sealed off, in the event of leakage, in a manner that will minimize the release of flammable materials. This is rebuttably presumed to be satisfied by the requirements of Title 49, Code of Federal Regulations, Part 192, in effect as of the date of this rule.
>
> (5) A program shall be developed using the best available practicable technology to monitor a proposed pipeline to ensure protection of public health and safety."

Part (1) states that this standard applies to the South Mist Feeder.

Part (2) of this rule is met because NWN will construct the proposed pipelines in accordance with 49 CFR 192 in effect on November 30, 1994, the effective date of the rule. Inspection and enforcement of 49 CFR 192 has been delegated by the federal government to the Oregon PUC. The PUC inspected the Mist facility in May 1996 and found it to be in compliance. The PUC also has provided a letter on August 21, 1998 stating that PUC staff frequently inspects NWN pipeline safety programs and that NWN closely adheres to the pipeline safety regulations.

Part (3) addresses noise from the compressor station. In this case, the only compressor station is at Miller Station, which is a surface facility related to the Mist Underground Storage Facility as defined in ORS 469.300(9)(a)(H). NWN upgraded its compressors at Miller station as approved in Amendment No.4 to the Mist site certificate. Noise testing conducted on July 27 and 28, 1998 demonstrated that the new compressor complies with OAR 340 Division 35 noise standards, and in fact was quieter than the older compressors it replaced. NWN does not propose any new compressor in connection with this application, and the 1998 test was conducted at full load. The Project meets the identical requirements at OAR 345-24-030(3). Moreover, vibration monitoring has been performed quarterly since the first year of Mist storage operations, with no reports of vibrations potentially related to Mist operations.

Part (4) is presumed to be satisfied because the pipelines will be constructed in accordance with 49 CFR 192 regulations. The pipeline will have isolation valves as specified in 49 CFR 192.179. Twenty-four inch valves and cross ties will be installed adjacent to the valves on the existing 16-inch transmission line. There will be three isolation points on the 24-inch pipe that match the locations on the existing 16-inch pipeline, one at Miller Station, one at the Bacona Blowdown Station and one near Pittsburg. All valves are manually operated. Pressures within the pipeline are monitored 24 hours a day from both the Miller Station control room and the Gas Control room in Portland. The longest distance between valves is about 15 miles.

Part (5) is met based on NWN's program to monitor the pipelines to ensure protection of public health and safety. Pressure sensing devices are positioned on the pipelines at Miller Station and near the wellheads to relay critical information to both Miller Station and the Portland gas control centers. High and low pressure alarms monitored on a 24 hour basis detect and locate areas where pressure variations may indicate abnormal conditions. Trained emergency response personnel are on duty 24 hours a day, at Miller Station or in Portland, to react to situations that require immediate attention. In its 1988 Final Order granting the Site Certificate, the Council found NWN's monitoring program acceptable and in compliance with EFSC monitoring requirements. There is nothing in the Application for the proposed expansion to invalidate EFSC's 1988 finding.

NWN has committed to comply with 49 CFR 192 requirements in construction and operation of the proposed expansion, and to use the same operation and maintenance procedures. NWN has committed to installing the isolation valves described in connection with part (4) of this rule, and to installing the pressure sensing devices and pressure alarms described in connection with part (5) of this rule. NWN has committed to having trained emergency response personnel on duty 24 hours a day, at Miller Station or in Portland, to monitor the pressure alarms on a 24 hour basis. These safeguards were added as conditions to the Mist Underground Storage Site Certificate. However, since this is a separate site certificate, these conditions shall be added to the South Mist Feeder site certificate as well.

Although the EFSC standard essentially requires compliance with federal regulations, there are really two basic questions here:
(1) How does the proposed pipeline meet the applicable standards?
(2) Even if the pipeline meets the standard, does it pose an undue hazard to the public?

We consider each question in turn.

How does the proposed pipeline meet applicable standards?
The basic safety standards required here are federal standards in 49 CFR 192. No one has alleged that the federal safety standards will not be met. Nor has anyone offered any facts regarding NWN's record of compliance with this standard or failure to comply. Nonetheless, OOE requested, and NWN provided, additional detail regarding the specifics of 49 CFR 192 in its "Design Summary" dated February 19, 1999.

Section § 192.5 of 49 CFR specifies the class location of an area based on building density and occupancy. A "class location unit" is defined as an on-shore area that extends 220 yards on either side of the centerline of any continuous 1-mile section of pipe. The table below describes the four classes, with the design factors used by the code in determining required pipe wall thickness. A lower design factor results in larger pipe wall thickness.

TABLE 1

Class	Design Factor	Criteria
1	0.72	10 or fewer buildings intended for human occupancy
2	0.60	More than 10 but fewer than 46 buildings intended for human occupancy
3	0.50	46 buildings or more intended for human occupancy, or an area where the pipeline lies within 100 yards of a building or well defined outside area that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12 month period
4	0.40	Buildings with four or more stories above ground are prevalent

Based on 1994 aerial photographs supplemented with field inspections, NWN has determined that the section of the proposed pipeline alignment from Miller Station to Dairy Creek Road would meet the class 1 criteria. However, NWN has designed this portion as a class 2 location. The portion south of Sherman Mill road (which is eliminated by condition to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM) would meet the class 2 criteria. However, NWN designed that portion as class 3.

The required pipe wall thickness is a function of pipe diameter, maximum allowable operating pressure ("MAOP"), and pipe yield strength. Section § 192.105 identifies the design formula for steel pipe as follows:

$$P = (2\ St/D) \times F \times E \times T, \quad \text{where}$$

P is the design pressure MAOP,

S is the pipe yield strength (52,000 psi for this pipe),

t is nominal wall thickness, D is the outside diameter (24 inches),

F is the design factor for the class from Table 1,

E is a longitudinal joint factor determined in accordance with § 192.113, and

T is a temperature derating factor determined in accordance with § 192.115

For the proposed 24-inch pipe, the required wall thickness would be .277 inches in class 2 locations, .332 inches at road crossings, and .332 in class 3 locations. The concern was raised that the federal code allows thinner pipe walls in rural areas than in urban. However, NWN has specified .375 inches at all locations, which meets the requirement for class 3 locations.

Section 192.150 of the code requires that pipelines be designed to allow passage of internal inspection devices (these devices are known as "pigs"). NWN has specified "pig stations" at two locations that meet this requirement.

Section § 192.179(a) stipulates that sectionalizing block valves shall be installed within the following spacing guidelines:

Class 1 - 20 mile separation

Class 2 - 15 miles separation

Class 3 - 8 mile separation

Class 4 - 5 mile separation

For the proposed 24-inch pipeline, NWN specified valves at Miller station, Pittsburgh (12 miles separation), Sherman Mill Road (15.9 miles separation), Dairy Creek Road(5.4 miles separation), and Mountaindale Road(4.3 miles separation). The area between Pittsburgh and Sherman Mill road is forest land and easily meets the class 1 population density criteria. The conditioned pipeline expansion would eliminate the sections containing the last two valve stations, however, they would meet the class 3 requirements if they were constructed. These block valves also meet section (4) of OAR 345-024-060.

Section § 179(c) requires that each section between main line valves must have a blowdown valve with enough capacity to allow the line to be blown down as rapidly as possible. Each blowdown discharge must be located so that the gas can be blown down without hazard. NWN has calculated worst case blowdown times for each blowdown station, and the longest time required was calculated to be 56 minutes. The 56 minute time would apply to the section between Pittsburgh and Sherman Mill road, which is primarily uninhabited forest land.

Welding requirements are specified in sections § 192.221 through § 192.245. Specifically, § 192.227(a) requires welders to be qualified in accordance with section 3 of American Petroleum Institute (API) standard 1104. The welders used on the proposed 24-inch line will be so qualified.

Section § 192.243 stipulates that a minimum of 15% of welds be tested in class 2 locations and 100% of welds in class 3 locations be tested (x-rayed). NWN will test 100% of welds in all locations.

Some petitioners (McNeil, Mathis) raised the issue of pipe clearance, especially at criss-cross locations. Section § 192.325 stipulates that a minimum of 12 inches of clearance be maintained between the pipeline and any other underground structure. NWN has committed, and EFSC has required by condition, that a minimum of 24 inches of clearance be maintained.

Section § 192.327 stipulates that a minimum of 36 inches of cover be maintained in both class 2 and 3 locations. NWN has committed to maintaining 48 inches of cover, and 60 inches in timber or cultivated lands.

Corrosion protection requirements are set forth in sections § 192.451 through 491 of the code. NWN has committed to using both cathodic protection and epoxy coatings for corrosion protection.

Subpart J of the code (sections § 192.501 through § 192.517) set forth test requirements. NWN meets these requirements by pressure testing the line to 1080 psi, or 150% of design pressure.

Subpart L of the code (section § 192.613) requires:

> *"*** a procedure for continuing surveillance of the facility and appropriate action concerning changes in class location, failure, leakage history, corrosion, substantial changes in cathodic protection requirements and unusual operating and maintenance conditions."*

Subpart M (sections § 192.705 and 706) require patrolling and leakage surveys to observe surface conditions for indications of leaks and other factors affecting safety and operation. The program at NWN includes a combination of visual surveys and instrumentation. The Council has imposed conditions requiring further recommendations for appropriate locations to place

instruments such as strain gauges and inclinometers, and a program to investigate the use of internal inspection devices with the ability to electronically detect pipe flaws (so called "smart pigs"). At a public meeting on March 11, 1999 in North Bonneville Wash., Williams Energy Co, which operates the federally regulated Northwest interstate pipeline, stated that they are also expanding their use of strain gauges and "smart pigs". It was their representation that these devices are relatively new technology but they are an improvement over the monitoring techniques previously available. Therefore NWN's use of these devices is consistent with EFSC rules OAR 345-024-060(5), which requires the best available technology to monitor the pipeline to ensure public health and safety.

All provisions of 49 CFR 192 are within the scope of the OPUC inspector, to whom the federal government has delegated authority for enforcement of this code in Oregon. The PUC inspector stated that he has inspected NWN has found them in compliance.

Based on the above, we conclude that the proposed pipeline meets the applicable federal requirements, and no facts have been offered to conclude otherwise.

Compliance with EFSC Structural Standard - OAR 345-022-020

Landslide hazard has been identified as one of the principal factors in recent pipeline explosions in the Pacific Northwest. Avoidance of this hazard is addressed in the EFSC Structural Standard, which requires that:

> "(1) The applicant, through appropriate site-specific study, has adequately characterized the site in terms of seismic zone and expected ground response during the maximum credible and reasonably probable seismic events; and
>
> (2) The facility can be designed, engineered, and constructed adequately to avoid potential dangers to human safety presented by seismic hazards affecting the site, as defined in ORS 455.447(1)(d) and including amplification, that are expected to result from all reasonably probable seismic events."

As noted in section IV.A.2 of this Order, this standard includes two requirements, a site characterization requirement and a requirement to design the pipeline to avoid seismic hazards. Landslide (mass movement) is among the hazards listed in ORS 455.447(1)(d).

NWN has characterized the site as belonging in seismic zone 3 according to the Oregon Building Code. The application states that design basis seismic event for the region is characterized by peak ground accelerations of 0.3g. No one has alleged that larger peak ground accelerations should be used.

Recent pipeline explosions in the Northwest include those at Kalama (1997), Sumas (1998), Bellingham (1997) and North Bonneville (1999), all of which occurred in active landslide areas.

On February 26, 1999 a 24-inch pipeline rated at 800 psi and operated by the Williams Energy Co. ruptured near North Bonneville, Wa. OOE inspected the site of the explosion, examined the ruptured section of pipe, and attended a public meeting held by Williams Co. at which company representatives stated their preliminary findings about the cause of the explosion and their plans for measures to prevent recurrence. Although these events took place after the Council meeting of February 25, EFSC has taken note of these events and of the information learned from Williams. The apparent cause of the explosion was landslide.

In assuring that its proposed pipeline expansion is designed to avoid landslide hazard, NWN

surveyed potential landslide areas along the proposed 24-inch pipeline alignment and classified them as active or dormant. Active landslides show recent movement in the field or in aerial photographs, fresh soil or rock exposed in main or minor scarps, open distinct ground cracks, or disruption of vegetation. Active landslides are considered capable of causing the pipeline to move or sustain abnormal loads. Dormant landslides do not show recent movement in field or aerial photographs, bedrock is weathered where exposed, no ground cracks are visible, vegetation is reestablished, minor scarps and transverse ridges are modified to appear hummocky. Dormant landslides are not considered to pose an unacceptable hazards to the pipeline.

In areas of active landslide areas, the proposed pipeline was either rerouted to avoid the hazard, or the alignment was adjusted and monitoring was proposed. In areas where the active or dormant status was uncertain, the alignment was adjusted to avoid the hazard or monitoring was proposed.

At its public meeting on March 11, 1999, Williams Energy Co. stated that their preferred methods of preventing future explosions in landslide areas include more use of strain gauges, more frequent monitoring and patrolling of the pipeline alignment, especially in years of unusually high rainfall, and excavation and stress relief when strain gauges indicate levels of pipe strain outside specified limits. Williams also indicated that reconnaissance along the pipeline alignment would be performed by qualified geologists with training to recognize signs of incipient landslide activity.

NWN has proposed, and we require by condition, to also increase monitoring, patrolling, and use of instruments such as strain gauges and inclinometers in areas of potential landslide activity. We also add further conditions to require increased geological training for the monitoring personnel to recognize signs of increased landslide potential. More importantly, NWN has specified the pipeline alignment along ridge-tops and parallel to the fall line in sloping areas with landslide potential. We believe these are effective measures because both the Kalama and North Bonneville explosions occurred in areas where the pipeline was running perpendicular to the fall line, which would increase shear stress in a landslide. We conclude that, by proposing these methods, NWN can effectively reduce the risk from hazards such as landslide.

Hazard to the Public - General Safety Considerations

Regardless of the project's compliance with applicable EFSC and federal safety standards, EFSC also has a responsibility to ensure that the pipeline does not pose an unacceptable risk.

Recent pipeline explosions indicate that pipeline failures, while unlikely, could have serious consequences if allowed to occur in a populated area. Recent pipeline explosions include events at Kalama (1997), Bellingham (1997), Sumas (1998), Pendleton (1999), and North Bonneville (1999). All of these events occurred on sections of the Northwest Pipeline, which is an interstate pipeline (and under federal jurisdiction only) constructed before 1960. All but the Pendleton event occurred in areas where landslide hazard was a factor. At the Kalama, Bellingham, Pendleton and North Bonneville events, the point of failure was either a circumferential weld or the section of pipe immediately adjacent to the weld. Detailed metallurgical review of the failure at North Bonneville is not yet complete, but that failure may still be related to welding practices because the steel in the 3 or 4 inches near a weld is also subject to increased local stress in an area called the "heat affected zone".

Comparison of Codes in effect in 1958 versus 1998

Prior to 1960, the federal government had not yet adopted pipeline safety regulations. The Northwest Pipeline was built using the industry standard codes in effect at the time. The American Society of Mechanical Engineers (ASME) and the American Petroleum Institute (API) adopted construction codes which later were developed into regulations. The industry complied with these codes on a voluntary basis, but they did not have the force of regulation.

The code in effect in 1958 was ASME B31.8. OOE was unable to obtain a copy of the 1958 ASME code, but we did get a copy of the 1968 code for comparison. Current federal codes at 49 CFR incorporate much of the 1968 ASME code but are stricter in some respects. For example, ASME B31.8 (1968) included class definitions based on population density much as the current federal regulations do. But the ASME code required 40% of welds be subject to non-destructive testing in a class 3 location and 75% in a class 4 location. Current federal regulations require 100% testing. The 1968 ASME code allowed testing by any of several methods, including two-dimensional (surface) testing methods such as magnetic particle and dye penetrant. Federal regulations currently allow any method " *** that will clearly indicate defects that may affect the integrity of the weld." (§192.243). Testing by x-ray is more difficult and more expensive, but it is preferred because it is a volumetric examination (more capable of seeing defects not on the surface). NWN has committed to using x-rays.

Welding Concerns

Weld failures have been identified as a contributing cause of pipeline failures at Kalama, Pendleton, and possibly Bellingham. NWN contends that current requirements are stricter than those in effect previously and effectively reduce this risk.

Current 49 CFR is more detailed than the 1968 ASME code about the qualification of welders and the inspectors who test the welds. Section § 192.229 requires welders to have pre-qualified within the past six months using the same process that will be used on the pipeline. The 1968 ASME code has only a more general requirement that qualified welders be used. Section 192.243(4)(e) requires that a sample of each welder's work be tested each day. This prevents companies from having non-destructive testing performed only on the work of the best welder in the crew, which was possible under the code. Current § 192.243 also requires that the testing be " ***performed by persons trained and qualified in the established procedures and with the equipment employed in testing", and it requires " ***procedures for the proper interpretation of each non-destructive test of a weld *** " The 1968 ASME code did not have analogous provisions. Both the 1968 ASME code and the current federal code endorse API standard 1104 for qualification of welders and weld inspections. However, that code has been updated several times since 1968. NWN is training its personnel to the 1994 edition of API 1104. The procedures that meet API 1104 not only reduce the likelihood of weld defects but also address temperature controls in the heat affected zone and reduce the likelihood of failures in non-landslide areas such as the Pendleton event of January 1999.

Pipeline welds conform to the published American Petroleum Institute (API) standards, specifically API Standard 1104. Subtle changes have been made to these standards over the years to insure that welds are of the highest quality possible.

The welds made in the late 1950's and early 1960's conformed to the August 1959 API Standard 1104, 6th addition. Current welds are made in conformance to the May 1994 API Standard 1104, 18th edition.

An example of the subtle changes in the applicable code follows:

August 1959 API Standard 1104, 6th edition:

"Welding procedures must be reestablished as a new procedure specification when:

a. Change in pipe metal (from ASTM or API Std. 5L and 5LX Grade X42 groups to API Std. 5LX groups in excess of Grade X42 and vise versa)."

May 1994 API Standard 1104, 18th edition:

"A welding procedure must be reestablished as a new procedure specification and must be completely requalified when:

2.4.2.2 A change in base material constitutes an essential variable. For the purpose of this standard, all materials shall be grouped as follows:

a. Specified minimum yield strength greater less than or equal to 42,000 psi.

b. Specified minimum yield strength greater than 42,000 psi but less than 65,000 psi.

c. For materials with specified minimum yield strength greater than or equal to 65,000 psi, each grade shall receive a separate qualification test."

The new verbiage points out that it is important to stay within specified minimum yield strength ranges when qualifying a weld procedure so the yield strength of each piece of pipe must be known ("b. Specified minimum yield strength greater than 42,000 psi but less than 65,000 psi.")

Obtaining heat sheets (a document from the steel manufacturer specifying the properties of each billet of steel), for each piece of pipe was not a part of the process in the late 50's and early 60's. A pipe order that specified 5LX grade X52 pipe would be certified by the manufacture to meet the specified minimum yield strength of 52,000 psi, but could go as high as 80,000 psi to 90,000 psi yield. The higher yield strength steels are generally less ductile and more brittle than the lower yield strength steel.

Today's pipe purchases specify both a high and a low specified minimum yield strength so we are sure to stay within the grade groups. Heat sheets from the 40 miles of .375 wall 5LX grade X52 pipe purchased for the Mist Loop project document that the yield strength ranges from a low of 53,400 psi to a high of 58,100 psi. Additionally, the composition of this steel has extremely good elongation properties, which make it ideal for pipelines.

Use of Proper Welding Procedures -

A publication by Energy Beam & Joining Technologies, LLC, states "Metallurgical changes can occur in the heat affected zone close to the weld when its temperature is within the transformation range of the base metal. These changes may manifest themselves as losses in corrosion resistance, ductility, hardness and strength. The heat sensitive characteristics of the material to be welded should be understood and accordingly preweld, welding and postweld techniques and appropriate treatments adopted."

Preweld treatments include testing for the necessity to preheat the pipe prior to welding. As stated in the American Welding Society, Inc. Welding Inspection Technology Handbook, International Standard Book #0-87171-467-1, "there are several ways of reducing or elimination residual stresses. It can be done thermally where the entire part or a large band containing the weld zone is heated uniformly and held at some temperature for a prescribed time period." In addition, the Pipe Line Rules of Thumb Handbook, third edition dated February 1996, states "The need for preheat varies considerably between applications. Cracking tendencies increase with higher carbon and alloy content, thicker pipe wall and diameter (faster quench rate), and

lower ambient temperature. Preheat to as much as 300 °F may be required to slow the quench rate and prevent cracking when welding high strength, large diameter or heavy wall pipe. Specific preheat requirements must be determined for each situation based on these considerations".

This implies that the specific yield strength and properties of the metal to be welded must be known so a qualification test can be conducted to specify preheat requirements for all cases to reduce stress in the heat effected zone. Specific information concerning yield strength of the pipe was not typically known in the late 50's and early 60's. The qualifying weld procedure may not have established appropriate preheat requirements since the properties of the metal could vary considerably.

As previously stated, current technology includes knowing the specific properties of each piece of pipe to be installed in the pipeline since metallurgic heat sheets accompany the pipe. In addition, the range of yield strength was limited by a very tight specification so materials to be welded together would be very uniform.

The qualification weld test is then conducted on this pipe using the highest yield strength pieces so preheat requirements can be determined using the worst case scenario. Welds are made, straps are removed from the weld and tested using the API 1104 testing requirements. If the tests prove the weld to be good without preheat, the qualification weld procedure is validated. If any failures are noted, preheat is added and the welds are re-tested until the welds are found to be acceptable.

Surveillance and coverage requirements

The 1968 ASME code required 6 inches of clearance between the pipeline and other underground structures. The current federal code requires 12 inches, and NWN has committed to 24 inches. The current federal code also has increased the required pressure for hydrostatic testing from 140% of design pressure to 150% in class 3 locations. Regarding monitoring and surveillance, the 1968 ASME code had a general requirement for patrols and visual inspections of the pipeline but did not specify any frequency. The current federal code has the same requirement but also has a minimum frequency. Regarding corrosion protection, both codes require appropriate coatings to prevent corrosion. The current federal code mandates the use of cathodic protection. The 1968 ASME code did not, although its use may have been accepted practice.

The above is not an exhaustive comparative review of the two codes, but it does indicate that the current federal codes have become stricter than the 1968 ASME code.

NWN commitments in excess of 49 CFR

In certain areas NWN has committed to design or operational measures that exceed the minimum 49 CFR requirements. The conditions in the March 15, 1999 public notice identify these measures as conditions to the site certificate.

The two major design features are the use of 0.375 pipe wall thickness and the use of 100% x-ray testing on all welds. Both of these features meet or exceed the requirements for pipe in a class 3 location, even though the population density in the proposed corridor is class 1 or class 2. For the "conditioned pipeline expansion" the pipeline would qualify as class 1 throughout. In locations where NWN has used public road right of way, 100% weld testing is required by the federal code (§ 192.243 (d)(3)).

A second feature is the fact that the actual pipe used is stronger than the 52,000 psi assumed in

the calculations. Each lot of pipe was tested at manufacture, and the as-tested strengths ranged from 53,410 to 58,100 psi with an average of 54,840.

NWN has also exceeded minimum federal requirements for clearances. The code requires 12 inches, while NWN has committed to 24 inches. The code requires 36 inches of pipe cover, while NWN has committed to 48 inches and 60 in cultivated or timberland areas.

The other significant safety feature not specified in federal codes is the use of strain gauges and inclinometers and the use of more frequent patrols (and better trained personnel performing the patrols.) These factors are not yet required by federal code, but they represent the "best available technology" required by OAR 345-026-060(5). Section §192.705 requires the following patrolling intervals:

Class 1 or 2 location: 15 month interval; but at least once in each calendar year. At railroads or highway crossings the requirement is 7.5 month intervals but at least twice each calendar year.

Class 3 location: 7.5 months but at least twice in each calendar year. At railroads or highway crossings the requirement is 4.5 months and 4 times each calendar year.

The federal code does not specify how the patrols are done, for example aerial patrols are acceptable. NWN has proposed to exceed this requirement by having more frequent patrols and having at least one a year on foot. And, conditions require NWN to submit a program of accelerated inspection based on rainfall, with a requirement that this program be approved prior to pipeline operations.

Pipeline location

As noted above, recent pipeline failures have tended to occur in areas of landslide hazard. Perhaps the simplest way to avoid landslide hazard is to locate the pipeline in flat areas such as valleys. The proposed pipeline route does use the flat area of the valley where possible, and has been routed to avoid active landslide zones whenever it is necessary to cross hilly terrain.

Some have pointed out proximity to houses as a potential safety issue. However, federal safety codes recognize that it may be necessary to place pipelines near houses in order to provide service. The federal code addresses the risk by requiring stronger pipe, more stringent weld inspections, and more frequent pipeline surveillance in higher population areas. The proposed NWN 24-inch pipeline follows this guidance by designing the pipe to class 3 requirements even in class 1 or class 2 locations.

Risk to public safety is also reduced by the fact that the landslide prone areas are not the same areas that are inhabited. OOE has reviewed aerial photographs and inspected the pipeline route along its entire length, and did not observe dwellings in active landslide zones or in sloping areas where landslide potential exists

Conclusion

In its application, NWN committed to meeting applicable federal safety regulations and supplied testimony from the authorized OPUC inspector that they have complied in the past. In supplemental material dated February 19, 1999, NWN supplied substantially more detail regarding compliance with the applicable federal safety codes. No one has indicated that they will not. Therefore the Council concludes the facility will meet the federal codes.

The three dominant contributing factors to pipeline explosions in the Northwest, including the

February 26, 1999 event at North Bonneville, appear to be landslide hazard, weld defects, and the age of the pipeline that failed. There have been improvements in construction and inspection requirements since that time, and NWN has committed to exceeding the minimum federal requirements by designing and inspecting the pipe to the requirements for Class 3 location. One significant fact regarding the risk to human safety is the fact the areas of high landslide potential are not the areas where dwellings are located. Therefore, the Council acknowledges that pipeline failures have occurred, but finds that the risk to humans is extremely low. The conditions that were listed in the public notice of March 15, 1999 shall be added to the site certificate.

D. Requirements of Other Agencies

The proposed pipeline will cross wetlands and will require a removal/fill permit in accordance with Department of State Lands (DSL) regulations.

NWN will hydrostatically test the proposed pipeline, requiring a one time withdrawal of water from the Nehalem River in the Nehalem watershed. In the Dairy Creek watershed, NWN originally proposed to use water from two sources; East Fork Dairy Creek and a private irrigation reservoir known as Lind Reservoir. NWN will require Limited Water Use Licenses from the Water Resources Department (WRD) for these three sources.

Upon completion of the hydrostatic test, NWN will dispose of the water using land application. NWN will require a Water Pollution Control Facilities (WPCF) permit from the Department of Environmental Quality.

1. DSL Removal/Fill Permit

Oregon Removal-Fill Law (ORS 196.800 through 196.990) and the Division's Removal-Fill rules (OAR 141-85-005 to 141-85-090) are applicable to the Project. A Removal-Fill Permit is needed if 50 cubic yards or more of material is removed, filled or altered within any "waters of the state" at the proposed site. Under the Removal-Fill Law, "waters of the state" include wetlands. The Council must determine compliance with applicable DSL regulations in order to approve the application. ORS 469.503(1)(b), OAR 345-22-000.

Discussion

Wetland biologists conducted field studies along the proposed route from April through August 1998. Wetlands that occur within the proposed construction corridor were delineated. Potential wetlands that occur within a 200 foot wide corridor centered on the proposed pipeline route, but extending beyond the construction impact area were noted. Each wetland is described in the Wetland Report for the South Mist Feeder Pipeline, dated September 15, 1998, prepared for NWN by Dames & Moore.

Based on these studies, the proposed route of the conditioned pipeline expansion crosses 42 wetlands[20]. NWN estimates that a total of about 5.38 acres of wetlands will be impacted as follows: 0.83 acres of forested wetlands; 0.40 acres of scrub-shrub wetlands; and 4.15 acres of emergent wetlands. NWN estimates that a total of about 12,000 cubic yards of material will be excavated during trenching and then backfilled into wetlands. Anticipated impacts to wetlands and proposed mitigation measures to avoid, minimize, restore and compensate for impacts, are

[20] See Table 1, Preliminary Mitigation Plan, dated February 1999. The route as initially proposed crossed 61 wetlands. NWN proposed refinements to the route that avoid ten of these wetlands. Terminating the pipeline at a point about one mile north of the East Fork of Dairy Creek, avoids nine more wetlands.

described in the Dames & Moore's September 15, 1998 Wetland Report, NWN's Application to Amend the Site Certificate, dated September 15, 1998, beginning on page 91, NWN comments dated February 19, 1999 on the Office of Energy's proposed order (dated January 19, 1999) and the Preliminary Mitigation Plan for the South Mist Feeder, dated February 1999. The impacts and mitigation measures are also discussed in more detail in this Order under the Council's Fish and Wildlife Habitat Standard in section IV.A.7 of this order.

Applicable DSL Statutes and Rules
Statutory standards from ORS 196.825

ORS 196.825(1) provides the overall decision standard for permitting wetland removals. It provides that "the director shall issue a permit to remove material from the beds or banks of any waters of this state * * * if the director determines that the removal described in the application will not be inconsistent with the protection, conservation and best use of the water resources of this state * * *."

The Removal-Fill Law provides permitting standards for fill and removal. ORS 196.825(2) provides the overall decision standard for permitting wetland fills. It provides that a permit shall be issued for filling waters of this state only after a determination that "the proposed fill would not unreasonably interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing and public recreation."

The wetland fills and removals meet this standard because:

(a) the impacted wetlands do not now offer major values related to public navigation, fishing and recreation;

(b) the resulting wetland fills and removals would affect only a portion of each wetland and the impacted wetlands will remain viable and will continue to offer wetland functions and values.

ORS 196.825(3) requires consideration of certain factors in determining whether grant a fill permit:

"(a) The public need for the proposed fill and the social, economic or other public benefits likely to result from the proposed fill * * *."

The statute here (and in all but one of the other considerations) addresses the proposed "fill," obviously distinguishing it from what the statute calls the "project." ORS 196.800(5) defines "fill" as "the total of deposits by artificial means equal to or exceeding 50 cubic yards or more of material at one location in any waters of the state." Thus, the statute limits our consideration here to the public need for the proposed pipeline that is proposed to be placed within jurisdictional wetlands. DSL advised, and we concur, that there is a public need for fills that would enable siting of necessary pipelines in an efficient and environmentally sensitive manner.

"(b) The economic cost to the public if the proposed fill is not accomplished."

Without the proposed wetland fills for the pipeline, the Project could not be completed economically because it is unlikely that a corridor could be selected between Mist and the southern terminus which is about ten miles north of North Plains that completely avoids all wetlands and stream crossings. Moreover, the proposed pipeline alignment follows the corridor for the existing pipeline to the extent feasible. Any other alignment would increase the amount of permanent right-of-way and would impact land previously unaffected, increasing the costs of

construction and right-of-way acquisition and the overall economic impact to affected property owners.

"(c) The availability of alternatives to the project for which the fill is proposed."

The most practicable route for the pipeline depends on the proposed wetland fills. The project for which the fills are proposed is identified in the Least Cost Plan acknowledged by the Public Utility Commission as the most desirable alternative for meeting NWN's expected load. Moreover, it is unlikely that an alternative pipeline project could be selected that completely avoids stream crossings and wetlands, and placing a pipeline outside the existing corridor would impact lands that were previously unaffected.

"(d) The availability of alternative sites for the proposed fill."

Alternative sites are not practical because underground gas storage requires the unique geological conditions found in Mist, and it is unlikely that a pipeline corridor could be selected from Mist to NWN's load centers in the Portland metropolitan area that completely avoids all wetlands and stream crossings. Moreover, placing the pipeline outside the existing pipeline corridor would impact lands that were previously unaffected.

"(e) Whether the proposed fill conforms to sound policies of conservation and would not interfere with public health and safety."

The proposed fills minimize impacts to wetlands and other waters of the state and minimize potential hazards to health and safety.

"(f) Whether the proposed fill is in conformance with existing public uses of the waters and with uses designated for adjacent land in an acknowledged comprehensive plan and zoning ordinances."

"(g) Whether the proposed fill is compatible with the acknowledged comprehensive plan and land use regulations for the area where the proposed fill is to take place."

All the fills are within the jurisdiction of Columbia or Washington counties. The Council has concluded, in consultation with these affected local governments, that the pipeline meets the Council's Land Use standard, which requires compliance with applicable substantive criteria from the acknowledged comprehensive plan and with LCDC statutes and rules directly applicable to the facility.

"(h) Whether the proposed fill is for stream bank protection."

In locations where the wetland is adjacent to a stream crossing, NWN has proposed fills necessary to restore the stream bank.

Administrative Rule Standards

OAR 141-85-050(1) requires an evaluation of probable impacts, "including cumulative impacts, of the proposed [fill] activity and its intended use on the water resources" by considering certain factors in addition to those required by the statute:

"(a) The environmental and economic consequences of the proposed fill."

As described above, the proposed fills will have minimal environmental impact because they will not result in a loss of wetlands. The fill material will be that which was removed from the wetland and the areas that are filled will be restored. NWN has committed, and the Council requires, detailed mitigation for impact to fish and wildlife habitat under the Council's Fish and Wildlife Habitat Standard. There appear to be no adverse economic consequences of the fills,

and in fact the project for which the fills are requested is expected to produce economic benefit to NWN ratepayers.

"(b) Direct and indirect effects of the fill on submerged and/or submersible lands."

The fills would avoid any waterway with state-owned submerged and submersible lands.

"(c) Effects of the fill on the hydraulic characteristics of the fill site and surrounding areas, such as water circulation, tidal fluctuation, current patterns and flood hazards."

The proposed fills will have no measurable effects on the hydraulic characteristics of the wetlands, because conditions proposed under the Council's Land Use and Fish and Wildlife Habitat Standards ensure that proposed fills will not alter the hydraulic characteristics of the site.

"(d) Effects of the fill on special aquatic sites and refuges, sanctuaries and scenic waterways."

The project will not affect any special aquatic sites, refuges or sanctuaries. The only crossing that might be considered a scenic waterway is the Nehalem River, which will not be affected because NWN will use directional boring.

"(e) Effects of the fill on water supply, water access, public recreation and aesthetics."

The proposed fills will not affect water supply or water access, and there is no current public recreation use of the impacted wetlands. There is not likely to be an effect on aesthetics, since the impacted wetlands are located on timber and farm land already affected by those uses.

"(f) Effects of the fill on water quality and aquatic life and habitats."

The proposed fills will not affect water quality because NWN will restore the affected wetlands to preserve the functional values. The effect on aquatic life and habitat will be mitigated under conditions recommended by ODFW and required for compliance with the Council's Fish and Wildlife Habitat Standard.

OAR 141-85-050(2) requires consultation with local governments to determine that the proposed fills are consistent with the local comprehensive plan and ordinances and planning goals. DSL and OOE have conferred with local governments and advise that the proposed fills are consistent with the local comprehensive plans and ordinances, statewide planning goals, and LCDC statutes and rules directly applicable to the project.

OAR 141-85-050(3) provides that no fill permit can be issued until certain determinations are made:

"(a) The project is consistent with the water quality and toxic effluent standards of the State of Oregon as administered by the Oregon Department of Environmental Quality and would not result in significant degradation of the waters of the state."

The Department of Environmental Quality must issue a section 401 water quality certification before NWN can construct the 24 inch pipeline. The conditions in this certification will ensure the project is consistent with Oregon's water quality and toxic effluent standards. DSL recommends a site certificate condition limiting turbidity, using standard language which has been agreed to by DEQ for general use in wetland permits. The affected wetlands will be restored, which will preserve their functional value. Therefore the impacts of the fills will be of limited duration and would not result in significant degradation of the waters of the state.

"(b) The project meets historical and archaeological site preservation requirements of ORS 390.235."

The SHPO has reviewed the Application and has no concerns. The Application identifies no cultural resources protected by ORS 390.235 that would be affected by the fills. The project complies with the Council's standard on Historic, Cultural and Archaeological Resources, OAR 345-022-0090.

"(c) There is no practicable alternative to the proposed fill which would have less adverse impact on the water resources of the State of Oregon."

As noted above, the expected impacts of are short duration, and (from an economic or engineering perspective) there are no practicable alternatives for transmitting gas from the Mist field.

"(d) The project would not adversely affect rare, threatened or endangered species in the State of Oregon * * *."

No state-listed rare, threatened or endangered species are known to be adversely affected by the proposed fills. The facility complies with the Council's standard on Threatened or Endangered Species, OAR 345-022-0070. Two federally-listed fish species, the Oregon Coast coho salmon and the Upper Willamette River steelhead are known to occur within the area that is affected by the route. The Council, in consultation with the ODFW, has determined that construction of the project, subject to the conditions in this order, would not adversely affect either of these species. To the extent that fish habitat will be affected, NWN will ensure that there is no net adverse impact through mitigation recommended by ODFW and required for compliance with the Council's Fish and Wildlife Habitat Standard, OAR-345-022-0060

"(e) The project individually or collectively would not cause significant degradation of municipal water supplies; aquatic life and habitats; functions of the aquatic ecosystem; or recreational, aesthetic and economic values of the water resources of the state."

The project will not affect any municipal water system. All unavoidable impacts of the proposed fills on aquatic life and habitat would be offset by restoration of all affected wetland areas and by mitigation recommended by ODFW and required for compliance with the Council's Fish and Wildlife Habitat Standard. There will be no significant effect on recreational, aesthetic or economic values.

"(f) Appropriate and practicable steps have been taken which will minimize adverse impacts of the fill on aquatic life and habitats."

As noted above, all aspects of the proposed fills (location, engineering, timing, equipment access, etc.) have been designed to minimize impact as much as practicable. Also, any unavoidable impacts will be fully mitigated as recommended by ODFW and as required for compliance with the Council's Fish and Wildlife Habitat Standard.

OAR 141-85-045, which governs removal permits, makes it the responsibility of the state to, "where reasonable, possible and appropriate, to provide for multiple use of the water resources of the state consistent with long-term conservation of those resources under sound techniques of waterway management." To accomplish that goal, the rule requires consideration of certain factors in relation to the proposed removal:

"(1) The environmental and economic benefits and detriments of the proposed removal."

This was addressed above in relation to the proposed fills.

"(2) Whether the proposed removal activity adversely affects the health, safety and welfare of the people of this state."

There would be no such effect, because of the relatively unpopulated area in which the proposed removals would occur, and the requirement to restore the site after placement of the pipeline.

"(3) Whether the proposed removal activity is inconsistent with existing and potential uses of the water resources of the state, such as"

(a) Water and materials for domestic use, agricultural use and industrial use;

(b) Habitats and spawning areas for fish;

(c) Avenues for transportation; or

(d) Sites for commerce and public recreation."

The proposed removals would not affect the use of water for domestic, agricultural or industrial purposes. Potential impacts on habitat and spawning areas for fish will be fully mitigated using measures recommended by ODFW and required for compliance with the Council's Fish and Wildlife Habitat Standard. None of the wetlands involved offer significant sites for commerce or recreation. Moreover, NWN will restore the affected wetlands after construction.

"(4) Whether the proposed removal activity significantly adversely affects the hydraulic characteristics of the water body such as direction and velocity of flow, elevation of water surface, sediment transport capacity, or stability of the bank or shore."

The proposed removals will not affect the hydraulic characteristics of any wetlands involved because NWN must comply with conditions in this order to protect hydraulic characteristics under the Council's Fish and Wildlife Habitat Standard, and with Washington County Code requirements for drainage and erosion control. NWN has committed to ensuring no net change in drainage characteristics, elevation, or stream bank stability. NWN will use the same drainage and erosion control measures in both Washington and Columbia Counties.

"(5) Whether the proposed removal activity adversely affects water quality or aquatic life and habitats."

This factor was addressed above concerning fills.

"(6) Whether the proposed removal is consistent with local comprehensive plan and ordinances and Statewide Planning Goals and the other policies of the Removal Fill Law and these administrative rules."

This factor was addressed above concerning fills.

For these reasons, the Council finds that the conditioned pipeline expansion complies with ORS 196.825 and OAR 141-85-045 and 141-85-050. To ensure continued compliance with these statutes and rules the Council, after consultation with DSL and the ODFW, approves the issuance of the DSL permit subject to the following conditions which shall be added to the site certificate:

This permit authorizes the removal of up to 12,162 cubic yards of silt, sand and gravel and the placement of up to 12,162 cubic yards of silt, sand and gravel (backfill) located in sections 2, 11, 13, 14, 23 and 24 Township 6 North, Range 5 West; sections 19, 28, 29, 30 and 33 Township 6 North, Range 4 West; sections 3, 4, 10, 11, 14, 23, 26, 35 and 36 Township 5 North, Range 4 West; sections 1, 12, 13, 24, 25 and 36 Township 4 North, Range 4 West; sections 6, 7 and 31 Township 4 North, Range 3 West; sections 1, 12 and 13 Township 3 North, Range 4 West; and

sections 17, 18 and 20 Township 3 North, Range 3 West, within Columbia and Washington Counties (Wetlands & Multiple Stream Crossings) for the construction of a 28 mile long underground natural gas pipeline from Mist, Oregon to a point in Washington County along Sherman Mill Road in the NW ¼, of the NE ¼ of Section 20 Township # 3 North, Range 3 West, Willamette Meridian, which is about 4.45 miles south of the Washington County line and about 1.23 miles north of East Fork Dairy Creek where it crosses Dairy Creek Road, Oregon as described in the Application to Amend the Site Certificate for the South Mist Feeder Pipeline and as conditioned by the Council.

This permit also authorizes removal and filling activities necessary to complete mitigation actions identified in this order:

1. NWN shall construct the pipeline in a manner that will minimize any turbidity increase.
2. Turbidity shall not exceed 10% above natural stream turbidities as a result of the project. The turbidity standard may be exceeded for a limited duration, (per OAR 340-41) provided all practicable erosion control measures have been implemented as applicable, including but not limited to conditions 3 through 6 below.
3. NWN shall use filter bags, sediment fences, silt curtains, leave strips or berms, or other measures sufficient to prevent offsite movement of soil;
4. NWN shall use an impervious material to cover stockpiles when unattended or during a rain event;
5. NWN shall use graveled construction accesses to prevent movement of material offsite via construction vehicles;
6. NWN shall use sediment traps or catch basins to settle out solids prior to water entering ditches or waterways;
7. NWN shall maintain erosion control measures as necessary to ensure their continued effectiveness, until soils become stabilized.
8. NWN shall not allow petroleum products, chemicals, or other deleterious material to enter the water. No fresh concrete shall come in contact with the active flowing stream.
9. NWN shall stop construction activity if DEQ turbidity limits are exceeded, and take any necessary steps to meet the requirements, such as removing any fine sediments from the construction area or using an alternate trenching technique.
10. Waste material and spoils shall be placed above the bankline and not in any wetland areas.
11. Construction in all streams where in-water work is required shall follow the designated in-water work period as recommended by the Oregon Department of Fish and Wildlife (ODFW), unless ODFW approves another in-water work period. ODFW shall be notified prior to any in-water work to verify the recommended work period for the affected stream.
12. NWN shall use spoils from the excavation of the trench to back fill the trench after the placement of the gas line. Extra care shall be taken when removing the vegetation from wetland areas so that it can be replaced back as close to its original location as possible.
13. NWN shall remove the minimum existing woody vegetation necessary to achieve the project purpose.

14. NWN shall restore disturbed areas of streambank as close as possible to their original condition using native plants, shrubs, trees and legumes. All exposed soils shall be stabilized immediately after the project's completion, to prevent erosion and sedimentation.

15. Mitigation for the impacts that result from the project fill and removal activities are governed by the conditions in this order under the Council's Fish and Wildlife Habitat standard.

16. To ensure successful habitat replacement NWN shall monitor the mitigation sites until vegetation has become established and the areas are functioning as specified in the Fish and Wildlife Mitigation Plan approved by OOE. The criteria for success shall be 80% survival of plants for a three year period.

17. The Division of State Lands, in consultation with the OOE, retains the authority to require appropriate corrective actions to the mitigation site in the event the newly created wetlands are not functioning as designed within a period of three years.

18. The Division of State Lands, in consultation with the OOE, retains the authority to temporarily halt or modify the project in case of excessive turbidity or damage to natural resources.

2. Limited Water Use License (ORS 537 and OAR 690)

NWN, in its application for amendment, proposed three sources of water for hydrostatically testing the pipeline (pressure testing) before it is placed in operation: two primary sources and one supplemental source. As its primary sources, NWN proposed to use approximately 4 million gallons of water from the Nehalem River at the rate of up to 2,000 gallons per minute and approximately 1.5 million gallons of water from an irrigation impoundment (Lind Reservoir) in Dairy Creek valley, at the rate of up to 2,000 gallons per minute. In the event there is insufficient water available from the irrigation impoundment, NWN proposed to withdraw up to 1.5 million gallons of water from East Fork Dairy Creek at the rate of up to 2,000 gallons per minute. These uses were requested to occur between April 1, 1999 and November 30, 1999.

These uses each require a Limited Water Use License to use water, which is governed by ORS 537.143 and OAR 690-340-030. Under ORS 537.143 a limited license may be issued to use surface water for any use of short term or fixed duration. Use of water under a limited license does not have priority over any water right authorized under a permit or certificate, is subordinate to all other authorized uses that rely upon the same source, and may be revoked at any time it is determined that the use causes injury to any other water right or perennial streamflow.

OAR 690-340-030 requires submission of an application to the Water Resources Department (WRD), including a completed water availability statement from the local watermaster. Under WRD rules, WRD may approve the license "upon a finding that the proposed water use will not impair or be detrimental to the public interest." The rule also imposes certain reporting requirements with respect to the use of the water.

Comments from WRD watermasters and ODFW district biologists indicated that both river sources are water limited during part of the year, and that water would only be available during the period from November 15 through April 14. In addition, when the water is available during the winter, federally-listed coho salmon return to the Nehalem River system to spawn and federally-listed steelhead return to the East Fork Dairy Creek drainage to spawn. ODF&W reviewed the

three applications for water use and does not oppose the granting of the limited licenses if appropriate steps, including proper screening of the water intakes, are taken to avoid impact to fish species, particularly the federally-listed salmon. The WRD recommended that the Council could approve each of the three limited license applications (LL 0322, LL 0325 and LL 0326), subject to several conditions (Szramek, WRD, letter to Bless, OE, dated January 13, 1999).

In March 1999, NWN revised its plans for hydrostatically testing the pipeline in response to the shorter pipeline as conditioned by the Council. Under the revised plan, NWN believes that it will require about 800,000 gallons to pressure test the conditioned pipeline expansion (Hayward, NWN pers. comm. to Meehan, OE, on 3/24/99). All of this water would be taken from the Nehalem River because the pipeline, as conditioned by the Council, would no longer cross East Fork Dairy Creek or come near Lind Reservoir. NWN requested the WRD approve this change. The WRD advised OOE that it did not object to NWN using water from only the Nehalem River (LL 0322) to pressure test the entire conditioned pipeline (French, WRD, letter to Bless, OE, dated March 22, 1999). WRD advised, however, that NWN should not withdraw its applications for limited water use from Lind Reservoir (LL 0326) or East Fork Dairy Creek (LL 0325) in the event that NWN might still need water from those sources.

In addition, NWN requested that it be permitted to withdraw water prior to November 15, 1999, with approval of the appropriate Watermaster. The WRD advised OOE that it does not object as long as NWN has the prior approval of both the appropriate watermaster and the ODFW (letter dated March 29, 1999 from French, WRD to Meehan, OOE).

In order to avoid harm to fish, protect instream water rights and authorized water uses, the diversion must take place at an appropriate time, and in an appropriate manner and location, in consultation with the appropriate watermaster, ODFW district biologist and OOE staff.

Conclusion: The Council finds that the proposed water use as conditioned below will not impair or be detrimental to the public interest and meets the requirements of ORS 537.143 and OAR 690-340-030.

Conditions:

(1) The licensee shall install, maintain and operate fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife (ODF&W) and the National Marine Fisheries Service (NMFS) to prevent fish from entering, or being harmed by, the proposed diversion. The required screens and by-pass devices are to be in place, functional and approved by an Oregon Department of Fish and Wildlife representative prior to diversion of any water. The licensee shall contact the ODF&W district biologist and the NMFS for screening criteria.

(2) The use shall be allowed only at times when the WRD Watermaster has determined the flows of the source stream are sufficient to satisfy in stream rights. The use shall be allowed only at times when ODF&W has determined the amount of the diversion will not reduce the flows of the source stream below an amount sufficient to meet the needs of spawning salmon. The use shall be at a location and in a manner approved by ODF&W and NMFS taking into consideration the effect of the diversion on turbidity, salmon spawning gravels, and other appropriate considerations.

(3) For the diversion from the Nehalem River, the licensee shall give notice to the Watermaster, the ODF&W North Coast District Office and the OOE not less than 15 days or more than 60 days in advance of using the water. The notice shall include the location of the diversion and place of use, the quantity of water to be diverted and the intended use.

(4) In addition to the notice above, the licensee shall contact the ODF&W district biologist at least

30 days before using the water and again 1 week before water use begins. If spawning fish or redds are present, NWN shall afford ODF&W the opportunity to be present during the initial water withdrawal.

(5) For diversions from Lind Reservoir and East Fork Dairy Creek, the licensee shall give notice to the watermaster, the ODF&W Lower Willamette District Office and the OOE not less than 15 days or more than 60 days in advance of using water. The notice shall include the location of the diversion, place of use, quantity of water to be diverted and the intended use. The licensee must also contact the ODF&W district biologist at least 30 days in advance of using water to determine if any additional requirements are needed to protect fish species.

(6) At each diversion at which NWN withdraws water under limited licenses LL 0322, LL 0325 or LL 0326, the licensee shall install a meter and maintain a record of use, including the total number of hours of pumping, the total quantity pumped, and the categories of beneficial use to which the water is applied. The record of use shall be submitted to the WRD Watermaster upon request.

(7) The limited licenses LL 0322, LL 0325 and LL 0326 are effective for the requested use between November 15, 1999 and April 14, 2000. NWN may withdraw water before November 15, 1999 with the prior approval of the appropriate WRD watermaster and the appropriate ODFW district fishery biologist.

(8) The Lind Reservoir shall be the preferred source of water in the East Fork Dairy Creek drainage. NWN may use water from East Fork Dairy Creek only if adequate water is not available in the Lind Reservoir.

3. WPCF permit requirements

NWN originally proposed to withdraw water from the Nehalem River, East Fork Dairy Creek, and an irrigation reservoir in Washington County (Lind Reservoir) to pressure test the new pipeline. The water will then be discharged either to pasture lands where it will be absorbed into the soil, or to Lind Reservoir. A Water Pollution Control Facility (WPCF) permit is required for this type of discharge pursuant to ORS 468B.025 and 468B.050 and OAR Chapter 340, Divisions 14 and 45. No discharge to surface waters may be allowed under a WPCF permit.

As conditioned to terminate at the NW ¼ of the NE ¼ of Section 20, T 3N R 3W, WM, the proposed South Mist Feeder pipeline expansion route (the "Conditioned Pipeline Expansion") may not require the discharge at Lind Reservoir. Only the Nehalem would be used as a water source, and the only discharge point would be the one listed below near Pittsburg. However, this change does not require changes to the findings of compliance with DEQ's WPCF permit requirements because no new discharge point is requested other than those already analyzed below. The DEQ findings below are not based on any assumptions regarding the fraction of water discharged to the Pittsburg discharge point or the North Plains discharge point. Therefore, the only change would be that the North Plains discharge point might be permitted but not used.

No solvents or oils will be added because none are used in the manufacturing, coating or installation of the pipe. NWN will construct an enclosure of straw bales and silt fence material in the pasture to receive discharge waters. The straw bales will reduce the discharge water velocity for erosion control and will act as a filter to reduce water turbidity. With these measures, the discharge of the water used for testing will not cause contamination of groundwater.

The two approved discharge points are:

1. Near the town of Pittsburg in SW ¼ of the NW ¼ of Section 23 T5N R4W;

2. Near the town of North Plains in SW ¼ of the SW ¼ of Section 36 T4N R3W.

The Council must find that the proposed discharge sites and methods meet DEQ requirements for this permit. The specific regulations for WPCF permits are in OAR 340-045 Regulations Pertaining to NPDES and WPCF Permits.

The permit requested is required per OAR 340-045-0015:

(1) Without first obtaining a permit from the Director, no person shall:

(b) Construct, install, modify, or operate any disposal system or part thereof or any extension or addition thereto:

Per OAR 340-045-0005:

> Disposal means the placement of wastes into public waters, on land or otherwise into the environment in a manner that does or may tend to affect the quality of public waters.
>
> Disposal system means a system for disposing of wastes, either by surface or underground methods...

A WPCF permit application requires the following exhibits:

1. A complete description of the proposal;
2. The location of the project and adjacent facilities and waterways;
3. Schedule for development;
4. Schematic diagrams of industrial processes, waste streams, and treatment;
5. Disposal of solid waste and sludges;
6. Groundwater information;
7. Evaluation of groundwater and surface water impacts.

NWN supplied the required exhibits (Application for amendment, Exhibit B). They have been reviewed by the Council and by DEQ and are satisfactory. DEQ has prepared a WPCF permit and recommends approval with the following conditions:

Waste Disposal Limitations

1. No discharge to state waters is permitted. All wastewater shall be distributed on land for dissipation by evapotranspiration and controlled seepage by following sound irrigation practices so as to prevent:
   a. Prolonged ponding of waste on the ground surface;
   b. Surface runoff or subsurface drainage through drainage tile;
   c. The creation of odors, fly and mosquito breeding and other nuisance conditions; and
   d. The overloading of land with nutrients or organics.
2. The permittee shall, during all times of disposal, provide personnel whose primary responsibilities are to assure the continuous performance of the disposal system within the limitations of this permit.
3. Prior to land disposal of the wastewater it shall receive at least treatment by filtering through straw bales.
4. Unless approved otherwise in writing by the Department, wastewater that is disposed of on land but not used to irrigate crops shall be disposed of on a deep-rooted cover crop to insure maximum infiltration and evapotranspiration rate.

Monitoring and Reporting Requirement

The discharge shall be monitored to ensure that all of the hydrostatic test passes through the straw bale containment area. The permittee shall inform the Department in writing when the discharge is completed.

Special Conditions

1. Prior to constructing or modifying any wastewater control facilities, detailed plans and specifications shall be approved in writing by the Department.
2. An adequate contingency plan for prevention and handling of spills and unplanned discharges shall be in force at all times. A continuing program of employee orientation and education shall be maintained to ensure awareness of the necessity for good in plant control and quick and proper action in the event of a spill or accident.

General Conditions

1. Property Rights

   The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws, or regulations.

2. Liability

   The Department of Environmental Quality, its officers, agents, or employees shall not sustain any liability on account of the issuance of this permit or on account of the construction or maintenance of facilities because of this permit.

3. Permit Actions

   After notice by the Department, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including but not limited to the following:

   a. Violation of any term or condition of this permit, any applicable rule or statute, or any order of the Commission;

   b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts.

4. Transfer of Permit

   This permit shall not be transferred to a third party without prior written approval from the Department. Such approval may be granted by the Department where the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of this permit and the rules of the Commission. A transfer application and filing fee must be submitted to the Department.

5. Permit Fees

   The permittee shall pay the fees required to be filed with this permit application and to be paid annually for permit compliance determination as outlined in the Oregon Administrative Rules.

Standard Operation and Maintenance

All waste collection, control, treatment, and disposal facilities shall be operated in a manner consistent with the following:

a. At all times, all facilities shall be operated as efficiently as possible and in a manner which will prevent discharges, health hazards, and nuisance conditions.

b. All screenings, grit, and sludge shall be disposed of in a manner approved by the Department such as to prevent any pollutant from such materials from reaching any waters of the state, creating a public health hazard, or causing a nuisance condition.

c. Bypassing of untreated waste is generally prohibited. No bypassing shall occur without prior written permission from the Department except where unavoidable to prevent loss of life, personal injury, or severe property damage.

Noncompliance and Notification Procedures

In the event the permittee is unable to comply with all the conditions of this permit because of surfacing sewage, a breakdown of equipment or facilities, an accident caused by human error or negligence, or any other cause such as an act of nature, the permittee shall:

a. Immediately take action to stop, contain, and clean up the unauthorized discharges and correct the problem.

b. Immediately notify the Department's Regional office, so that an investigation can be made to evaluate the impact and the corrective actions taken and determine additional action that must be taken.

c. Within 5 days of the time the permittee becomes aware of the circumstances, the permittee shall submit to the Department a detailed written report describing the breakdown, the actual quantity and quality of resulting waste discharges, corrective action taken, steps taken to prevent a recurrence, and any other pertinent information.

Compliance with these requirements does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for failure to comply.

Wastewater System Personnel

The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and monitoring requirements to assure continuous compliance with the conditions of this permit.

Monitoring and Records

1. Inspection and Entry

The permittee shall, at all reasonable times, allow authorized representatives of the Department of Environmental Quality to:

a. Enter upon the permittee's premises where a waste source or disposal system is located or where any records are required to be kept under the terms and conditions of this permit;

b. Have access to and copy any records required to be kept under the terms and conditions of this permit;

c. Inspect any treatment or disposal system, practices, operations, monitoring equipment, or monitoring method regulated or required by this permit; or

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

2. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for bacteria which shall be averaged as specified in the permit.

3. Monitoring Procedures

Monitoring must be conducted according to test procedures specified in the most recent edition of Standard Methods for the Examination of Water and Wastewater, unless other test procedures have been approved in writing by the Department and specified in this permit.

Reporting Requirements

1. Plan Submittal

Pursuant to Oregon Revised Statute 468B.055, unless specifically exempted by rule, no construction, installation or modification of disposal systems, treatment works, or sewerage systems shall be commenced until plans and specifications are submitted to and approved in writing by the Department. All construction, installation or modification shall be in strict conformance with the Department's written approval of the plans.

2. Change in Discharge

Whenever a facility expansion, production increase, or process modification is anticipated which will result in a change in the character of pollutants to be discharged or which will result in a new or increased discharge that will exceed the conditions of this permit, a new application must be submitted together with the necessary reports, plans, and specifications for the proposed changes. No change shall be made until plans have been approved and a new permit or permit modification has been issued.

3. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified by the official applicant of record (owner) or authorized designee.

The Council finds that the proposed discharge complies with the DEQ WPCF permitting requirements, subject to the above conditions recommended by DEQ.

V. Issues Raised in Public Comment

As a result of its initial notice, OOE received comment in writing from four property owners along the pipeline route. The four property owners were G. Espinoza of Ontario CA., Mr. Larry Duyck of Cornelius OR., Mr. Glen Mathis of Vernonia, OR and Mr. David Wirtanen of Vernonia OR.

Mr. Espinoza raised questions regarding the impact of construction on his property.

Mr. Mathis and Mr. Wirtanen wrote in opposition to the project, also because of impacts on their property, concerns over the potential loss of land due to the increase in permanent right-of-way, potential impacts on wells and septic systems, and concerns about the trench during flood season.

Mr. Duyck raised concerns about the potential for automobiles colliding with above ground components of the pipeline near his property.

Comments on Proposed Order

The council received 15 letters from the public regarding the South Mist Feeder amendment by the comment deadline. All but two were in opposition to the project. Comments were received from Glen and Maria Mathis (Mathis), David and Diana Wirtanen (Wirtanen), Ronald E. Rehling (Rehling); Edward and Jaymi Yazzolino (Yazzolino), Kathryn and Jens Robinson (Robinson); Representative Jackie Taylor (Representative Taylor), 1000 Friends of Oregon, UA Local 290, Washington County Rural Road Operations and Maintenance Advisory Committee, Barbara Alexander (Alexander), Roderick and Ellyn McNeil, (McNeil), Larry Duyck (Duyck), Roger and Debi Meyer (Meyer), Bob Gutmann (Gutmann), the Washington County Farm Bureau, Gilbert Espinoza, Tualatin Riverkeepers, and Citizens for Protection of the Dairy Creek Valley (CPDCV).

OOE also received comments from Northwest Natural, the Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, the National Marine Fisheries Service (NMFS). Staff grouped the comments by issue for purposes of analyzing and responding to the comments. Comments that were included in a request for contested case are analyzed below, other comments are analyzed and responded to in the section of this order that deals with the particular issue raised.

Requests for contested case

Contested cases were requested by a group of individuals and CPDCV, represented by attorney Steven Moskowitz (the Moskowitz group). The individuals in the Moskowitz group are Ellyn and Roderick McNeil, Ron Rehling, Larry Duyck, and Earl and Susan Anthony. The Moskowitz group withdrew its petition in a letter to the Council dated March 25, 1999, however a discussion of that petition is included here for completeness. Contested cases were also requested in writing by Mathis, Wirtanen, Duyck, Washington County Farm Bureau and Oregon Farm Bureau and Representative Taylor.

Standards for Determining Whether to Grant a Contested Case

The Council will grant a contested case when it finds that significant issue of fact or a significant issue of fact or law has been raised in the context of compliance with a Council standard, and when the person requesting the hearing has made a showing that there is additional evidence that may affect the Council's determination that a particular standard is met. If the Council determines that even if the alleged facts are taken as true, the outcome of the Council's determination would not change, but that conditions of performance might need revision, the Council will deny the contested case, and will adopt appropriate conditions. The Council will not grant a contested case if the Council does not have jurisdiction over the matter, such as in issues of value in condemnation.

In this proceeding, in making its preliminary recommendations, OOE considered whether the issue was within the Council's jurisdiction, whether the request raised issues of fact regarding compliance with a council standard, and whether the issue or facts "were significant or otherwise justified a contested case." For purposes of the determination "significant" is defined in OAR 345-01-010:

"Significant" means having an important consequence, either alone or in combination with other factors, based upon the magnitude and likelihood of the impact on affected human population or natural resources, or on the importance of the natural resource affected, considering the context of the action and impact, its intensity and the degree to which possible impacts are caused by the proposed action. Nothing in this definition is intended to require a statistical analysis of the magnitude or likelihood of a particular impact.

Many commenters raised similar issues. The issues were grouped together for analysis. At the Council's scheduled meeting on February 25, 1999, staff made preliminary recommendations to the Council regarding whether to grant the requested contested cases. The council accepted additional oral comment on issues that had been raised in written comments. The staff recommended granting contested cases in three issue areas: compliance with the land use standard, compliance with the fish and wildlife standard in Washington County and compliance with the archaeological standard in Washington County. Issues were also raised about pipeline safety, traffic, the need for the pipeline and property values. As discussed below, the staff recommended that the council deny contested cases based on these issues.

Also at the February 25 meeting and based upon its review of the requests for contested case, NWN presented a proposal to the Council for a condition to the amended site certificate that would approve the proposed 24" pipeline only to a point north of the Dairy Creek Valley. NWN's proposal was intended to eliminate the need for a contested case by eliminating the portions of the proposed pipeline that were routed through land that required additional land use, fish and wildlife or archaeological findings.

A significant number of commenters expressed concern that the current application is a request for an amendment to a site certificate rather than a new site certificate. Commenters also expressed concern that the amendment process was "fast track" and did not contain a thorough regulatory review. One commenter pointed to the number of conditions required for the F&W wildlife standard to argue that an amendment is inappropriate. That commenter did not, however, present any argument that fewer conditions would be needed if another route were chosen. In fact, in light of the federal listing of threatened salmon in both drainages between Mist and North Plains, it is likely that similar conditions to protect habitat would be required for any proposed route. In addition, Oregon law permits NWN to seek an amendment to its existing site certificate to place a new pipeline in an existing corridor. As long as NWN meets the statutory requirements, the Council has no jurisdiction to require a new site certificate application.

Staff Recommendations On Requests for Contested Case

Compliance with the Land Use Standard (OAR 345-22-030)

A full discussion of the facility's compliance with the council's land use standard is found in Appendix A of this Order. The standard requires, in general, that the Council must determine whether the facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission (LCDC). Several commenters objected to the proposed order on the basis that it did not demonstrate that NWN had met the standard for the proposed amendment. The objections focused on two issues: whether the Council adequately considered the impact on farm land and farm operations (the farm compatibility issue) and whether the Council could allow the amendment to the site certificate if NWN did not adequately consider alternatives to the proposed route of the 24" pipeline where it was routed through land

zoned for exclusive farm use (EFU land)(Utility Necessary for Public Service issue). These issues are analyzed separately.

Impact on Farm Land and Farm Operations

The most common land use issue raised by commenters was whether the project's potential impact on farms and farm operations had been adequately presented in the application for amendment or considered in the proposed order. Commenters argued that the pipeline could force significant changes in the practices and costs for some types of farms, or that the proposed pipeline would be disruptive of farm use. Some examples of claimed disruptions to farm operations were changes in crop rotations due to leaving land idle for one or two seasons of construction, irrigation impacts including interference with drain tile, construction timing, soil compaction and impact on wet soils, and improper backfilling and mixing of sub- and top-soil.

At the February 25, 1999 Council meeting, staff recommended that the Council grant a contested case on these "farm compatibility" issues because the issues raised met the Councils definition of "significant." The commenters raised factual issues about compatibility of a pipeline with current farming practices that could not be resolved without fact finding. In addition, under the Oregon land use law, land zoned for farm use is an important resources and the pipeline would likely have some impact on farm uses. Both the Washington County and Columbia County zoning codes contain requirements to minimize farm impacts. The fundamental question to be decided in the contested case would be whether NWN adequately demonstrated that the proposed pipeline would not "force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agricultural or forest lands." While this issue was raised specifically by commenters from Washington County, at the Council's hearing on February 25, landowners from Columbia County also raised the issue whether NWN had adequately demonstrated compatibility in Columbia County, although they did not provide specific facts to support their assertions.

Demonstration that the Proposed Pipeline is a "Utility Facility Necessary for Public Service"

Several commenters stated that the Proposed Order did not have contain adequate facts or findings to demonstrate that the facility must be sited on agricultural land in order for the service to be provided. The issue was raised specifically regarding land use compliance determinations in Washington County. At the Council meeting on February 25, Columbia County residents asserted that their property was farm land governed by the same standard. Under current Oregon land use precedents, to place a utility facility across land zoned for exclusive farm use, a developer must show that the facility is a "utility facility necessary for public service" and that there is no feasible alternative to locating the facility on farm land. Commenters specifically noted that the Proposed Order did not consider any alternatives to locating the pipeline on land zoned for exclusive farm use and that alternatives are available.

The comments raised significant issues of fact and mixed issues of law and fact within the Council's jurisdiction. Because farm land is an important resource and the use of farm land is governed by a pervasive statutory land use scheme, the outcome of a contested case could have important consequences for the siting of the pipeline. Therefore, at the February 25 Council meeting, staff recommended that the Council grant a contested case to determine, first, whether NWN was required to consider alternatives to placing the approximately 4.6 miles of the proposed pipeline in the EFU district for those segments that are not within the site boundaries and, second, for the proposed pipeline within the site boundary, did NWN adequately demonstrate that it considered alternatives to placing the pipeline in the EFU zone to the extent

that such changes of the route would not result in the need to seek a new site certificate. However, the recommendation was specific to Washington County because the properties in question in Columbia County are on land zoned other than PA-38, which is Columbia County's designation for exclusive farm use, and because a condition has been added to the site certificate restricting the pipeline to the public right-of-way in any area zoned PA-38.

Compliance with the Fish and Wildlife Habitat Standard (OAR 345-22-060)

A full discussion of the facility's compliance with the Council's Fish and Wildlife Habitat Standard (F&W standard) is found in section IV.A.7., above.[21] Comments regarding compliance with the F&W standard focused on two areas: whether NWN had adequately demonstrated compliance with the standard in Washington County given the potential (now actual) listing of the Upper Willamette River Steelhead (UWRS) as a threatened species and the adequacy of NWN's F&W mitigation plans. Staff recommended a contested case on the threatened Steelhead issue and recommended that the Council not hold a contested case on the mitigation issue.

Protection of the Upper Willamette River Steelhead

Several commenters noted that the National Marine Fisheries Service (NMFS) expected to list the Upper Willamette River Steelhead as threatened in March 1999.[22] They also noted that the proposed order did not specifically address this listing and thus, could have adverse impact on a federally listed species. The commenters raised a significant issue regarding the categorization of streams, wetlands and riparian areas along portions of the proposed pipeline in the East Fork Dairy Creek drainage. Staff recommended a contested case to develop facts needed to determine if the pipeline would affect this species. Specifically, the contested case should be limited to determining whether listing of the UWRS would affect habitat categorization of stream crossings in the Dairy Creek drainage, including crossings 51, 52, 54, 56, 57, 58 and 60, and whether additional mitigation would be necessary to enable the project to meet the EFSC Fish and Wildlife Habitat Standard if any of those crossings were upgraded to Category 1 Habitat as a result of the listing.

Several petitioners also raised the issue of whether NWN should use directional boring for more of the stream crossings as suggested by the Washington County Planning Department. The Application and Proposed Order state that boring is not practical in all locations, and the Proposed Order recommended that boring be used where feasible. However, the basis for requiring directional boring is impact on important habitat. The use of directional boring was recommended in comments by Washington County Land Use Planning, but has been treated as a habitat issue, not a land use issue. Therefore staff recommended that contested case consideration of the UWR steelhead issue described above should include consideration of whether boring should be required in the streams affected by the listing.

Interpretation and Adequacy of Mitigation Plan

Several letters addressed NWN's proposed F&W mitigation. The Proposed Order included detailed mitigation proposals from NWN that were supplemented by conditions suggested by

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[21] Some commenters also referred to the Councils Threatened and Endangered Species Standard (OAR 345-22-070). That standard refers only to state-listed threatened or endangered species listed under ORS 496.172(2) or ORS 564.105(2). No Oregon listed species were identified by the applicant and there are no allegations by commenters that there are Oregon listed species that should be considered. Therefore, the fish and wildlife issues here are analyzed for compliance with the Fish and Wildlife Habitat standard (OAR345-22-060).

[22] As more fully described above in section IV.A.7, NFMS did list the species under the ESA on March 16, 1999.

ODFW, and other agencies and adopted as recommended conditions by OE staff. Commenters argued that the only way to completely ensure proper mitigation is through continued monitoring and involvement by biologists from both NWN, OOE and ODFW. No commenter, however, asserted that the information already contained in the record regarding mitigation was incorrect or offered additional new information sufficient to raise a factual issue and justify a contested case. Thus, the staff recommended that the Council deny a contested case to review the mitigation plan. Additional review of these comments is found below.

Compliance with Historic, Cultural and Archaeological Resources Standard (OAR 345-22-090)

Several commenters raised issues concerning compliance with this standard. At least one commenter stated that contrary to NWN's representations in the application, NWN planned to place the pipeline through an identified archaeological site. The commenters stated that NWN had not obtained the required permit to disturb the archaeological site, identified as 35WN33 in Washington County. The comments raised a significant factual issue regarding the exact location of the archaeological site and a factual and legal issue regarding NWN's compliance with the statutory requirement to obtain a permit and consult with affected tribes. Staff recommended a contested case to determine the facts regarding excavation or disturbance of site 35WN33.

Pipeline Safety Issues

The pipeline safety issues were raised in two contexts: compliance with the Council's Structural Standard (OAR 345-22-020) and, although this was not specifically stated, compliance with the Council's Public Health and Safety Standards for Pipelines (OAR 345-24-060). Commenters raised the safety issue in different forms, such as suggesting a need for more analysis in the proposed order regarding the location of portions of the pipeline in the Keasey formation to support a finding of compliance with structural standard and voicing a generalized concern about the potential for landslides, recent pipeline explosions, and the effect of criss-crossing the pipeline.

This issue has important consequences because it involves human safety. However, the likelihood of pipeline explosion is extremely low. No commenter alleged facts sufficient to show that either the Structural or Safety standard is not met, nor do they raise specific questions that additional facts would answer. In fact, the primary challenge to the Structural standard is that the findings are inadequate to support the legal conclusion the that standard is met. This assertion is a valid comment on the proposed order. Review of NWN's application reveals, however, that it contains detailed factual discussions about the geology of the area, including the Keasey formation and the potential for landslides, detailed statements about where landslides are likely or not, discussion of how the pipeline is designed to minimize landslide hazard, and how the alignment was selected specifically to favor locations where landslide hazard is lowest. These facts are not controverted by commenters. Thus response to the comments might require additional findings to be included in the Council's final order, but does not raise an issue to be resolved through additional fact finding. Similarly, the petitions bring up the topics of landslide and earthquake hazard in a general way, but they do not explain what kinds of new facts would be needed or challenge the validity of facts supplied in NWN's application.

The commenters also raise the safety issue in a general way by pointing out the pipeline explosions that have occurred recently in Oregon and Washington. These explosions are not alleged to be on NWN pipelines. The comments focus on pipeline safety in general, but no commenter alleged additional facts to show that the proposed pipeline's safety is inadequate.

The safety codes that apply here (including those that address pipeline separation) are federal safety codes, which NWN must meet to comply with OAR 345-24-060 (2). No commenter alleged facts that show the project will not meet federal safety standards. In fact, in its comments submitted on February 19, NWN demonstrated that it has committed to exceeding the federal safety standards in several respects. For these reasons, a contested case would not help resolve the safety issues and staff recommended that the Council not grant a contested case on these issues. Regarding the pipeline safety allegations, the Council finds that even if the alleged facts regarding pipeline explosions are taken as true, the outcome of the Council's determination of compliance with the Structural and Safety standards would not change. However, additional conditions of performance are warranted. A complete discussion of the safety issues, including the additional conditions, is found at section IV.C.2.

Council Findings on Petitions for Contested Case

As described in section II.B. above, NWN, in response to comments and requests for contested cases, proposed a condition that would terminate the pipeline expansion in the NW ¼ of the NE ¼ of Section 20, T3N R3W, W.M. This termination point would eliminate approximately 9 miles of the pipeline expansion in Washington County through farm land zoned EFU and would eliminate a number of stream, wetland and riparian crossings in the Dairy Creek drainage. The effect of the shortened route would be to eliminate a number of the issues recommended by staff for contested case, specifically the Washington County land use, compliance with the archaeological standard and UWS fish and wildlife issues. At the same time, the staff proposed a further condition that would require NWN to use road right-of-way wherever the pipeline was proposed to be located in land zoned for exclusive farm use, that is land zoned EFU in Washington County and PA-38 in Columbia County. As described in section II.B, the Council decided to adopt the condition terminating the pipeline before it traverses the Dairy Creek valley. This condition eliminates land zoned EFU in Washington County. The Council also adopted the condition requiring use of public right-of-way in land zoned PA-38 in Columbia County.

The Council has adopted additional conditions relevant to its findings on granting contested cases. These include conditions requiring specific approval by the respective county before providing additional gas hook-ups to the new line and safety conditions proposed in response to the North Bonneville pipeline explosion of February 26, 1999. The findings on contested case below are made taking into account these conditions.

Moskowitz Group

A group of concerned citizens in Washington County, represented by attorney Steven Moskowitz, and called the Moskowitz group for ease of reference, jointly requested contested cases on the following issues. Members of the Moskowitz group are Citizens for the Protection of Dairy Creek Valley, Ellyn and Roderick McNeil, Ron Rehling, Larry Duyck, and Earl and Susan Anthony. The McNeils, Mr. Rehling and Mr. Duyck also filed individual comments which did not specifically request a contested case. Some of the issues raised by the individual comments were the same as those raised in the Moskowitz group petition. Issues raised by the individuals but not included in the petition for contested case are not treated as requests for contested case, but are addressed below.

On March 25, 1999 attorney Steven Moskowitz notified the Council in writing that this petition for contested case was withdrawn, based on the condition to terminate the pipeline outside the Dairy Creek Valley. However, findings on the issues raised in that petition are included here for completeness.

Historic, Cultural and Archeological Standard: The Moskowitz group alleged that the proposed order contained incorrect information about NWN's plans to excavate site 35WN33, located on the McNeil property in the Dairy Creek valley. As noted above, staff originally recommended a contested case on this issue. However, the Council has conditioned the amendment to the site certificate on the termination of the expansion before it enters the Dairy Creek valley. Based on the condition, this issue is now moot and the request for contested case is denied.

Land Use Standard: The Moskowitz group raised issues relating to both farm use compatibility and analysis of alternatives to the proposed pipeline through land zoned EFU in Washington County. In addition, the Moskowitz group stated that supplying service to users outside the urban growth boundary would violate WCC 430-105.7. As noted above the Council has adopted conditions terminating the expansion pipeline before it enters the Dairy Creek valley, requiring NWN to place the pipeline in the road right of way wherever it crosses through land zoned for exclusive farm use and requiring NWN to obtain the county's approval before allowing service connections to the 24" pipeline. Based on these conditions, the Council finds that the land use issues raised by the Moskowitz group are now moot and the request for contested case is hereby denied.

Structural Standard: The Moskowitz group asserted that the Proposed Order did not adequately address landslide potential in the Keasey formation and that the findings were inadequate to support a finding of compliance with structural standard. As addressed above, the petitioners did not present additional facts to controvert the facts contained in the application. Thus response to the comments might require additional facts from the Application and findings based on those facts to be included in the Council's final order, but does not raise an issue to be resolved through additional fact finding. The Council finds that a contested case is not warranted and the request for contested case on the structural standard is hereby denied.

Washington County Farm Bureau/Oregon Farm Bureau (Larry Duyck)

Land Use Standard . Washington County Farm Bureau and Oregon Farm Bureau submitted joint comments that requested a contested case and raised issues relating to both farm use compatibility and analysis of alternatives to the proposed pipeline through land zoned EFU in Washington County. As noted above the Council has adopted conditions terminating the expansion pipeline before it enters the Dairy Creek valley and requiring NWN to place the pipeline in the road right-of-way wherever it crosses through land zoned for exclusive farm use. Based on these conditions, the Council finds that the land use issues raised by the Washington County Farm Bureau and Oregon Farm Bureau are moot and the request for contested case is hereby denied.

Tualatin Riverkeepers

Fish and Wildlife Standard: Listing of the Upper Willamette River Steelhead (UWRS) by NMFS. The UWRS was listed on March 16, 1999 by the National Marine Fisheries Service as a threatened species under the Endangered Species Act. The proposed order did not address the UWRS as a threatened species. As noted above, the Council has adopted a condition that will terminate the expansion in the upper region of the East Fork Dairy Creek drainage, before the pipeline crosses the creek itself or enters Dairy Creek Valley. The biologist from ODFW has confirmed by field inspection that the conditioned pipeline expansion in the upper East Fork Dairy Creek watershed, subject to the conditions in this order, will not harm the UWR Steelhead and will not result in loss of its habitat. Therefore, the request for contested case is hereby denied.

Fish and Wildlife Standard: Mitigation: Tualatin Riverkeepers raised several issues regarding adequacy of habitat mitigation to protect or enhance the quality of water in the Tualatin drainage. However, these issues were generalized statements which did not appear to take into account NWN's proposed mitigation plan or standards, the requirement for DEQ water quality certification; and conditions proposed as part of WPCF permit. NWN does not plan to discharge into streams. The petition does not raise any new significant facts on this issue or demonstrate why more facts are needed. Thus, the Council finds that the water quality mitigation issues raised by Tualatin Riverkeepers do not justify a contested case hearing and the request for contested case on this issue is hereby denied. Tualatin Riverkeepers also asked about DEQ permit requirements, but did not provide any facts alleging that NWN would not comply with applicable DEQ permit requirements.

Citizens for Protection of Dairy Creek Valley (CPDCV) (Ellyn McNeil)

Fish and Wildlife Standard: Listing of the Upper Willamette Steelhead (UWS) by NMFS.. CPDCV requested a contested case because the "proposed order is vague and misleading" regarding whether NWN will use directional boring to cross streams in the Dairy Creek drainage. Although the issue of directional boring was recommended in comments by Washington County Land Use Planning, the significance of the issue is to compliance with the F&W standard.. As noted above, the Council has adopted a condition that will require the pipeline expansion to terminate before it crosses larger streams that are known UWRS habitat in the East Fork Dairy Creek drainage Therefore, the issue is moot and the request for contested case is hereby denied.

Fish and Wildlife Standard: Mitigation: CPDCV raised several generalized concerns about fish and wildlife mitigation under the proposed order, including interpretation of language in the conditions, for example "to the extent possible," and need for further detail about tree removal and other habitat protection measures. The comments did not controvert material contained in the application or specify what additional information would be presented in a contested case. The Council finds that CPDCV did not raise a significant factual issue justifying a contested case. Matters raised by CPDCV would not change the Council's determination that NWN had complied with the Fish and Wildlife Habitat Standard, but might result in additional conditions. Therefore, the Council hereby denies the request for contested case on wildlife mitigation issues.

Glenn & Maria Mathis and David & Diana Wirtanen

Glenn and Maria Mathis (Mathis) and David and Diana Wirtanen (Wirtanen) submitted identical letters requesting contested cases and commenting on issues. Neither letter identified a specific Council standard at issue in their comments. A number of comments by Mathis/Wirtanen were on issues beyond the Council's jurisdictional authority, such as the determination or diminution in value of their property as a result of the proposed pipeline. In oral testimony on February 25th, Mr. Mathis stated that his land was "prime farmland". However, the term was not defined, and the land in question is not on land zoned for exclusive farm use. One comment was related to the Council's Public Safety standard.

Pipeline Public Health and Safety Standard: Mathis and Wirtanen expressed a concern that recent pipeline explosions in the NW raise safety questions, also questions about earthquake safety. However, their comments did not controvert information included in the application nor do they raise specific questions that additional facts would answer. The explosions are not alleged to be on NWN pipelines. The comments focus on pipeline safety in general. No commenter alleged facts that show the project will not meet federal safety standards. The comments state that major factors in pipeline safety are ground stability, age and overuse.

However, no one has alleged that the sections of the pipeline route subject to landslide hazard are in residential areas, nor has anyone alleged that these hazards exist in the relatively flat terrain where residential properties are located. Moreover, age is not a factor in this case because the proposed pipeline is new. In fact, construction of new lines may actually promote safety by providing the company with the capacity to repair older lines. The Council finds that even if the alleged facts regarding pipeline explosions are taken as true, the outcome of the Council's determination of compliance with the Structural and Safety standards would not change. However, additional conditions of performance are warranted and have been adopted by the Council. Those conditions were issued for public comment on March 15th 1999 with an opportunity for public comment. Although many comments were received that raised the safety issue, none commented on the new conditions. A complete discussion of the safety issues, including the additional conditions, is found at section IV.C, above. The Council concurs with staff's recommendations on the public safety issue. The Council therefore denies the request for contested case on the safety issue.

Mathis and Wirtanen also raised a number of issue that are beyond the Council's jurisdiction. For example, they claim that NWN is seeking an easement that is too wide, the new easement may impair federal loans and the value of their property, and NWN will not commit to not expanding the pipeline again. The Council has no jurisdiction to determine the size of the easement that NWN will require to build the pipeline, does not determine the value of the property and does not have authority to control the contracts that NWN need for the pipeline. Similarly, the Council may only act on the application that is currently before it and cannot preclude future development. The Council notes that NWN did offer in writing to commit to no further pipeline expansions for ten years. However, that offer was a private matter between the parties, and is outside Council jurisdiction. The Council hereby denies the requests for contested case on issues not under its jurisdiction.

Pipeline is not Needed: no energy shortage: The need for the facility is addressed under Council standards at OAR 345 Division 23. The Council has found that proposed pipeline expansion meets this standard because it is identified in the OPUC acknowledged Least Cost Plan. The Council's Need for Facility Standard does not require an energy shortage; it grants a presumption of need to a facility identified in the Least Cost Plan. No facts were offered that rebut this finding. Therefore the request for contested case based on need for the pipeline is denied.

Roger & Debi Meyer

The Meyers submitted comments to the record on January 28, 1999 which did not contain a written request for a contested case. In those comments they raised issues relating to pipeline safety, flooding and impact of the proposed pipeline on their property values similar to those raised by Mathis and Wirtanen. As noted above, property values in condemnation are not within the Council's jurisdiction. The Council has also determined to deny a contested case on pipeline safety issues. The Meyers raised no additional significant issues justifying a contested case. They joined in comments with Mathis and Wirtanen to supplement their presentation of February 25, 1999, but those comments do not serve to make a timely request for a contested case. The Council finds that the Meyers request for contested case is not timely and therefore, it is hereby denied.

Rep. Jackie Taylor

Representative Taylor requested a contested case to "assure that adequate consideration is given regarding archaeological sites that may be impacted." The request, however, did not raise a

significant issue of fact or otherwise justify a contested case regarding compliance with the Historic, Cultural and Archaeological Resources standard. A contested case on this standard was recommended by staff based on the application of the Moskowitz group. The Council has adopted a condition requiring NWN to terminate the proposed expansion before it crosses the Dairy Creek Valley where the archaeological site in question is located. Therefore, this issue is moot and the request for a contested case is denied.

Other Issues Raised In Comments

Fish and Wildlife Habitat Standard: Mitigation. OOE has worked with NWN and consulted with ODFW to improve the mitigation plan for the pipeline and will continue to do so. See comments from NWN dated February 19, 1999. For this issue, an evidentiary process is not as valuable as field work. The Order makes a detailed explanation of why a flexible mitigation plan, with room for mid-course corrections based on monitoring by OOE and ODFW, is the best way to ensure that ODFW habitat mitigation goals are met.

Impacts on Traffic. This issue was raised by several commenters although no one requested a contested case specifically on the issue. Impacts of the project on traffic are discussed in section IV.A.12., above.

Potential for Future Pipelines Several commenters voiced concern that there are no guarantees that NWN will not seek additional expansion of the pipelines from Mist to Portland. As discussed above, the Council considers the application before it and therefore, cannot predict or control any future plans that NWN may have for expansion or additional pipelines.

Compliance with DEQ WPCF Permit Requirements. The WPCF permit application is discussed in Section IV.D.2., above.

Compliance With Easement Restrictions: Several commenters raised issues regarding the terms of their easements and NWN's compliance with them. An easement is a contract between the property owner and the utility and is beyond the Council's jurisdiction.

Safety from Exposed Valves: Pipeline safety, including portions of the facility located above ground, is discussed in Section IV.C., above. As described in the application, the only above ground structures are those required by federal safety codes, and the Council has found that NWN will comply with those codes.

Property Value, Condemnation, and Property Taxes: Several commenters raised issues regarding the valuation and taxation of property acquired by NWN for pipeline easements. EFSC does not have jurisdiction over theses issues.

Comments Received after March 15, 1999

The Council received 8 letters of comment in response to its notice of March 15, 1999, as follows:

1. March 24, 1999 Petition by Noakes, Mathis, Meyer, Wirtanen, Jones, Buckner, Epling, Hartwick, Titus and Washburn (Noakes et al.)

This petition does not contain any new facts, but repeats the blanket statement that "natural gas transmission lines across the nation have had a very poor track record." The petition also states that the safety issues are very important "due to the proposed pipeline being so close to homes and the highway." However, as noted in section IV.C. , the federal government, in creating its standards, explicitly recognizes that pipelines may be located in residential areas, as shown by

the definitions of Class 3 locations (more than 45 homes per mile) and Class 4 (residences and buildings greater than 4 stories). The federal government has chosen to permit pipeline construction in such areas, with stricter requirements for design, construction and maintenance. The section of highway 47 under discussion here would match the definition of class 1 or possibly class 2, but we have required by condition that NWN build the pipeline as if it were class 3. There is no allegation that federal standards will not be met, nor is there a call for new standards on a nationwide basis. As with some of the comments received before March 15th, this petition says people are concerned about pipeline safety generally but does not raise any new facts about this pipeline in particular. Also, this petition is not timely because, contrary to the notice of March 15th, it does not concern the proposed new conditions, but rather concerns the project in general.

2. Letter by Rena and Donald Titus (Titus). The Titus letter does not address the proposed new conditions of March 15th, but raises general issues.

Overuse due to supply and demand. The Titus letter does not show how the proposed pipeline contributes to this overuse, and in fact NWN's stated reason (see Order, Need for Facility Standard) for the proposed new pipeline is to alleviate the pressure on existing pipelines from growing demand.

Overpressurizing This is a general issue, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, the federal standards include requirements to design the pipeline with sufficient margin of safety to ensure the pipeline is not overpressurized. There is no allegation that the federal standard will not be met. The one fact regarding overpressurization is the event that was reported subject to 49 CFR 192 requirements, which is already addressed in the application and for which the PUC (which enforces 49 CFR 192) did not issue a violation.

Failure of locates This is a general issue, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, this is not a new fact because Jack Dent, of the OPUC, stated at the February 25th meeting that failure of locates is actually more a problem for smaller lines in urban and suburban neighborhoods.

Aging of pipelines This is a general issue, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, aging is clearly not a reason to prohibit construction of new lines. In fact, construction of new pipelines could contribute to safety by providing the chance to repair or replace some older lines.

Already have existing pipeline This is a general issue, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, the Council is aware that there is already an existing pipeline in this location, in fact the statute explicitly provides encouragement to place new lines in the same corridor as existing ones.

State Protection of wetlands/endangered species This is a general issue, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, the proposed order has extensive discussion of wetlands and habitat mitigation. The petition does not allege that these measures are insufficient, does not suggest any different measures, and does not controvert the discussion in section IV.A.7 .

Landslides/earthquakes These are general issues, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, the draft order has extensive discussion of both landslide hazard and earthquake. The petition does not controvert any of the discussion or conclusions in section IV.A.2 or IV.A.3 of the order.

Protection of homes These are general issues, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, issues such as taxes, resale value, and condemnation are outside Council jurisdiction.

3. Letter from Linda Jones This letter appears to be addressed to the County Commissioners, not EFSC.

4. Letter from Jones and Christopherson This letter raises concerns about general pipeline safety, questions about the residents' wells, highway construction, and possible flood concerns. These are general issues, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Safety issues are addressed in great detail above. Possible impact on residents' wells is a property issue outside Council jurisdiction. Regarding flood issues, the proposed order had extensive discussion of measures to mitigate drainage and erosions hazard, with conditions requiring those measures be implemented. More have been added in response to Roger Meyers' oral comments of February 25th. This letter does not controvert that discussion or allege that those measures will not be implemented or will not work.

5. Letter from Meyers, March 22, 1999 This letter primarily discusses pipeline safety in general, and also alleges that residents have not been adequately informed. These are general issues, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. The letter also states that NWN has trespassed during surveys. If true, nothing in EFSC's site certificate or process encourages NWN to trespass, and NWN should certainly comply with all trespassing laws. That is not, however, a siting issue or a matter for contested case. The letter states that some people did not know of the February 25th Council meeting. As described in Section III of this order, the Council complied with its notice requirements, and in fact public information meetings in North Plains and Natal were above and beyond the requirements. Finally, the letter states that NWN was supposed to have an alternate route plan prepared, but that requirement applies to new site certificates or a facility in the EFU zone.

6. Letter from Wirtanen, Mathis and Meyer March 20 (Wirtanen, Mathis & Meyer). This petition raises the following concerns:

a) Condition for no construction until adequate control - This condition does appear in the proposed order and will be enforced. There is no fact in dispute here.

b) Need for pipeline with regard to NWN proposal to shorten the pipeline - There is no allegation that the conditioned pipeline expansion is inconsistent with the OPUC approved Least Cost Plan or the EFSC Need standard. Nonetheless, staff requested NWN to show that the shortened pipeline still meets the assumptions in the Least Cost Plan. NWN did so, in their supplemental information of March 24, 1999. Moreover, the statement by Carla Kelley to the Council at the December 11, 1998 meeting was not a factor in any finding of compliance with any standard, nor was it a factor in the proposed order.

c) Pipeline explosions elsewhere - These are general issues, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Our discussion of safety issues is summarized above and a detailed discussion of pipeline safety is in Section IV.C of this order. As discussed above, there is no allegation that federal safety standards will not be met, and therefore no basis for contested case.

d) Socio-Economic Impacts - The additional use of road right of way is a timely concern because it results from the new condition to use road right of way in the PA-38 zone. However, the Council's socio-economic standard addresses the ability of the community to

provide services such as fire, police and ambulances. NWN has always been required to allow such vehicles passage in an emergency, and we have conditioned the order to require it.

e) Flood Hazard - This is a general issue, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. Also, it is not a new issue, because the same question about flooding in the Nehalem valley was raised in an OOE request for additional information. The petition cites a December 11th letter from attorney Peter Mostow regarding applicability of flood zone requirements in Columbia County. This letter was in response to that OOE request. The fact that the Nehalem valley has flooded several times in the past few years is neither new nor in dispute. Mr. Mostow's answer concerned the Columbia County zoning ordinance only, not the general question of flooding. Moreover, the proposed order included measures that would be taken to ensure that pipeline construction did not adversely affect drainage in flood hazard areas, and more conditions have been added in response to concerns about flooding at the February 25th EFSC meeting. There are no facts to indicate that those measures cannot be taken or would not effectively mitigate any effect the pipeline might have on drainage.

f) Habitat/Endangered Species - These are general issues, not a consequence of NWN's proposal to terminate the line at the Bacona Blowdown. The proposed order contained detailed mitigation requirements, and more have been added. There are no reasons given why those measures will not be implemented or will not work.

g) Land Use - the letter correctly states that a pipeline is not listed as a permitted use in RR-5 zone. The application and the proposed order address this issue and make goal findings as allowed by ORS 469. No one has offered arguments or facts to rebut those goal findings.

7. Letter from David Wirtanen, March 17th. This letter asks if there is a double standard for comments. The answer is that there is not, because the Council considered all the testimony it heard on February 25th, whether they were raised by NWN in support of the application or from the public in opposition. Also, the Council did not only consider NWN's proposal to shorten the pipeline route but delayed any decision and provided a second, focused comment period for the public to address NWN's proposal. This letter also asks when NWN will restart its project in Washington County. The Council cannot forbid or require NWN to submit a future proposal for a new project. We consider the applications as they are submitted. The letter asks where specifically NWN will increase its use of highway 47, and asks that it be put in writing. The Council has added conditions clarifying this, and NWN has offered in writing to use the highway in order to avoid certain properties. Finally, this letter again raises the safety issue in general. The safety issue is discussed in detail above.

8. Letter from Greg Brown, March 24 (Brown) This letter does not allege non-compliance with any standard. Mr. Brown had not previously asked for a contested case, and does not ask for one here. However, his suggestion of monitoring for areas that may be considered for future expansions appears to be a constructive suggestion, and there is no reason such studies could not be done.

VI. Order and Conditions for the Site Certificate Amendment

We conclude that the Project complies with all Council standards and applicable requirements of other agencies, and amend the Site Certificate to permit construction and operation of the conditioned pipeline expansion as described in this Order, which shall be incorporated into the

Site Certificate. The Site Certificate shall be amended to include the following conditions:

A. General Conditions and Conditions from OAR 345 Division 27

(1) NWN shall submit to the department a legal description of the conditioned pipeline expansion site to be appended to the Site Certificate prior to construction.

(2) The conditioned pipeline expansion shall be designed, constructed, operated and retired:

(a) Substantially as described in the amended Site Certificate;

(b) In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time Amendment No. 2 to the Site Certificate is issued; and

(c) In compliance with all applicable permit requirements of other state agencies.

(3) Construction of the conditioned pipeline expansion shall begin not later than the end of March 2000 and be completed not later than December 31, 2001.

(4) No construction, including clearing of a right of way, except for the initial survey, may commence on any part of the facility until the certificate holder has adequate control, or has the statutory authority to gain control, of the lands on which clearing or construction will occur.

(5) NWN shall prevent any condition over which NWN has control from developing on the conditioned pipeline expansion site that would preclude restoration of the site to a useful condition.

(6) NWN shall restore vegetation to the extent practicable and shall landscape portions of the area disturbed by construction in a manner compatible with its surroundings and/or proposed future use. Upon completion of construction, NWN shall dispose of all temporary structures not required for future use and all timber, brush , refuse and flammable materials or combustible material resulting form the clearing of land or from construction of the facility.

(7) NWN, in consultation with ODFW and DSL, shall develop specific mitigation plans consistent with Council findings under the Council's Fish and Wildlife Habitat standard. Such plans must be approved by the department prior to the beginning of construction or, as appropriate, operation.

(8) NWN shall terminate the 24 inch pipeline at the "Bacona Blowdown Station" located at the NW ¼ of the NE ¼ of Section 20, T3N R3W, WM in Washington County. NWN may terminate the 24 inch line at a point north of this location, but shall not extend the pipeline south of this point

(9) NWN shall construct the conditioned pipeline expansion along the route that was the basis for the evaluation in this order and within the construction site as described in section II. C. of this Order. NWN may request deviations from the route, and the Council authorizes the Office of Energy to approve such adjustments to the conditioned pipeline expansion route, within the construction site, if it determines that such adjustments are consistent with the Council's findings of compliance with the standards in OAR 345 Divisions 22, 23, and 24 and do not violate conditions in this Final Order.

(10) After construction, the site, as that term is defined in ORS 469.300 and OAR 345-01-010, of the conditioned pipeline expansion shall be the 440 yard wide corridor, between the Mist Underground Gas Storage Facility and the Bacona Blowdown Station, as approved in the

original site certificate, dated February 1989, except that in the reroute areas which are outside the corridor, the site shall be the rights-of-way for the conditioned pipeline expansion that NWN has obtained by lease, easement, purchase or other lawful means.

Site Specific Conditions Under 345-027-0023

(1) NWN shall notify OOE, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the Application for Amendment No. 2. The Council may, at such time, require the certificate holder to propose additional mitigating actions in consultation with the Department of Geology and Mineral Industries and the Building Codes Division.

(2) NWN shall notify OOE, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site.

(3) NWN shall submit to OOE copies of all incident reports involving the certified pipeline required under 49 CFR §192.709.

Monitoring Conditions Under 345-027-0028

(1) NWN shall establish, in consultation with affected state agencies and local governments, monitoring programs as required by the Site Certificate for impact on resources protected by the standards of division 22 and 24 of this chapter, and to ensure compliance with the Site Certificate. The programs shall be subject to the review and approval of the Council.

(2) NWN shall establish monitoring programs as required by permitting agencies and local governments, as required by the Site Certificate.

(3) If NWN becomes aware of a significant environmental change or impact attributable to the facility, NWN shall submit to OOE as soon as possible a written report identifying the issue and assessing the impact on the facility and any affected Site Certificate conditions.

B. Conditions related to EFSC Standards

Structural Standard:
NWN shall follow the GeoEngineering recommendation that seismic design of facilities underlain by shallow bedrock (geologic units T_{CRB}, T_S, T_{PB}, T_K, and T_{KV} on Figure G-3 of the application, Exhibit 19) be performed using the following parameters:

Parameter		Value
Seismic Zone Factor	Z	0.30
Soil Profile Type	S	S_B
Seismic Coefficient	C_a	0.30
Seismic Coefficient	C_v	0.30

Soils Standard

1. NWN shall backfill trenches using native soils. Where necessary, the pipeline will be surrounded by bedding sand. Once installation is complete, the soils will be revegetated to minimize any form of erosion from rain or wind.

2. Erosion prevention techniques and sediment control measures will be used as described in the Washington County Erosion Control Plans Technical Guidance Book, dated February 1994. Examples include temporary sediment fences described in section 3.3.1, the straw bale sediment barrier described in section 3.3.3, straw mulch shown in section 3.3.7, sediment traps and ponds from section 3.3.11, and temporary interceptor dikes and swales in section 3.3.11. Use of these measures is not limited to Washington County.
3. NWN will install strain gauges on the 24-inch pipeline at locations suggested by Geo Engineering following their study. The gauges will be installed following installation just prior to backfilling and calibrated to zero stress at that time. These gauges will be "read" periodically to see if there is a change in stress levels that would indicate ground movement. In addition, there will be three aerial inspections and one walk through per year with special instructions to visually monitor these areas for indications of ground movement.
4. NWN will implement recommendations at Exhibit 19 §§ 5.2, 5.3 of the application to avoid erosion due to groundwater and rainfall finding a preferential path through pipeline backfill materials.

Land Use Standard (including conditions recommended by affected local governments)

1. Within the Federal Emergency Management Act ("FEMA") 100-year regulatory floodway, excess soils generated by trench excavation and backfill will be hauled off of the pipeline alignment and disposed of in an approved area outside the floodway. Surface conditions will be restored to pre-construction slopes and grades and will be revegetated. (WCC § 421-7.1, 7.6)
2. If the pipeline crosses a stream or drainage hazard area, it will be installed under the channel and the channel will be restored to its original conditions (WCC § 421-7.3)
3. There will be no above ground structures that will catch debris or impede floodwater flow. (WCC § 421-7.4)
4. The existing grades and dimensions of the floodway will not be changed. Trench excavations that have disturbed vegetation will be revegetated. (WCC § 421-7.5)
5. The site will be restored, as far as practicable, to its original state by filling the trench with stockpiled topsoil and then replanting. (WCC § 421-11)
6. Maintenance outside the public right of way shall be done by means of hand implements (lawn mowers are considered hand implements) unless a Development Permit for an alteration is first obtained from Washington County.(WCC § 421-14.1)
7. NWN will not dump in a flood area (WCC § 421-14.8)
8. NWN will take the erosion control measures described in Exhibit 33-A and 33-B of the application. All erosion control activities will be performed in accordance with the Washington County Technical Guidance Book dated February 1994. A NWN inspector will be instructed on how and when to implement these erosion control plans. (WCC § 410 1.6B)
9. NWN shall submit to Columbia County LDS plans for avoiding, restoring or mitigating any wetlands crossed by the pipelines or shall provide a letter from the Oregon Division of State Lands that all DSL's requirements have been met regarding wetlands in the area.
10. NWN shall submit to Columbia County LDS a letter from the Oregon Department of Transportation that all of ODOT's permit requirements have been met.

11. NWN shall submit to Columbia County LDS a letter from the Mist-Birkenfeld and Vernonia Fire Districts stating that all fire safety concerns have been addressed.
12. NWN shall obtain from the Washington County Operations Division a utility permit to allow construction of the pipeline within the County road right-of-way. A copy of the permit shall be submitted to the Land Development Division Project Planner.
13. NWN shall provide the Washington County Land Development Division Project Planner with a copy of any permits from the Oregon Division of State Lands and/or the U.S. Army Corps of Engineers for work that will be done in flood plain areas.
14. NWN shall provide an erosion control plan, meeting the requirements of Washington County Code (WCC) Section 428, for all construction activities. The erosion control plan shall be submitted to the Washington County Land Development Division project planner prior to commencement of any construction.
15. NWN shall work with farmers and forest operators on a case-by-case basis to minimize impacts to local farming and forestry activities during construction.
16. NWN shall repair cultivated areas disturbed during construction to pre-construction conditions.
17. NWN shall protect drainage and flood hazard areas from soil erosion and equalize cut and fill to yield no net fill in these drainages. NWN should certify at the completion of the project that no net fill has occurred in flood hazard areas. Dispose of excess overburden/spoils in accordance with the grading and drainage sections of the code. Any excess soils must be placed in an authorized area outside the flood hazard area. NWN shall obtain any required grading permits from Washington County for placement of this material.
18. This approval is for the gas pipeline improvement project described in the application materials. The gas pipeline shall be installed using directional boring for stream crossings numbered 2, 3, 4, 8, 20, 26, 29, 30, 34 and 35, as listed in Table 7 (revised) of the Application, Exhibit 22.
19. Enhancement of riparian habitats through planting or other such improvements is strongly encouraged by Washington County. WCC section 421-4.6B suggests the planting of "at least 5 plants per 100 feet of bank area."
20. NWN shall coordinate construction activities with the owners of adjacent and nearby lands who are carrying out forest operations.
21. The permanent right of way for the pipeline shall not exceed 50 feet in width.
22. NWN shall provide a drainage control plan meeting the requirements of Washington County Code Section 412 for all construction activities. The drainage control plan shall be submitted to the Washington County Land Development Division project planner prior to construction in Washington County.
23. No urban service connection shall be allowed to the 24 inch pipeline, unless specifically approved by Columbia or Washington County pursuant to applicable local and/or state land use regulations.
24. On land zoned PA-38 in Columbia County, NWN shall place new pipeline in the public right-of-way.

25. NWN shall design and construct the pipeline utilizing the flood hazard prevention measures committed to in the NWN letter from Charles Stinson to Adam Bless dated March 25, 1999.

Fish and Wildlife Habitat

1. NWN shall prepare a Fish and Wildlife Habitat Mitigation Plan (Plan) consistent with the goals and criteria specified by the Council in Section IV.A.7.j of the Final Order.
2. NWN shall not begin specified construction activities or operation, as OOE, in consultation with ODFW and interested federal agencies, determines appropriate, until OOE, in consultation with those agencies, has approved the Plan.
3. All mitigation measures proposed by NWN and listed in section IV.A.7.d of the Final Order are deemed commitments and shall be added as conditions to the site certificate.
4. All measures recommended by ODFW and listed in Section IV.A.7.e of the Final Order shall be added as conditions to the site certificate.
5. In sections of construction considered critical, work will not proceed without confirmation that OOE and ODFW have been notified at least one week in advance. This notice is required to afford OOE and ODFW the opportunity to send qualified monitoring personnel. If NWN provides timely notice, the failure of OOE or ODFW to send qualified personnel shall not prevent NWN from performing the specified work. The Fish and Wildlife Mitigation Plan shall identify those sections of construction that are considered critical.
6. NWN shall use flume and diversion methodology as described in its USCOE permit application at all stream crossings that contain flowing water at the time of construction. NWN shall ensure that fish passage consistent with ODFW standards and criteria will be provided at all fish-bearing streams that contain flowing water at the time of construction.
7. NWN shall use the wetland crossing methodology described in its USCOE permit application at all wetland crossings.
8. NWN shall not disturb wetland areas, riparian areas, or waterways until it has obtained all required section 401 and section 404 permits and approvals, including any required authorization relating to a federally-listed threatened or endangered species. If the conditions in the amended site certificate conflict with conditions imposed by the DEQ in its section 401 certification or the U.S. Army Corps in its section 404 permit, NWN shall consult with OOE and ODFW to resolve the conflict before beginning construction.
9. NWN shall maintain the right-of-way during pipeline operation using the methods described in section IV.A.7.g of this Order. At stream and wetland crossings, NWN shall not remove trees that are allowed to grow or are planted within the permanent right-of-way of the 24 inch pipeline, except for an area within five feet on either side of the centerline of the pipeline, for the life of this site certificate.
10. NWN shall be responsible for costs associated with ODFW monitoring. ODFW will monitor in an advisory capacity to OOE.
11. NWN shall bore under stream crossings numbered 2, 3, 4, 8, 20, 26, 29, 30, 34 and 35; and under wetlands numbered 060514C (at Lindgren Creek crossing), 040306B (at Kenusky Creek crossing) and 060514A (at Lyons Creek crossing).
12. NWN shall not begin construction on the 24 inch pipeline until it has obtained a 1200c Stormwater Discharge Permit from DEQ.

13. NWN shall use the measures described in its March 26, 1999 letter from M. Hayward, NWN to Meehan, OE, to respond to a release of drilling mud (bentonite) as a result of boring operations during pipeline construction.

Financial Assurance

If the project is halted prior to completion, NWN shall restore of any right-of-way that has been disturbed. NWN shall be responsible for backfilling of any open ditch, revegetation and restoration costs, and any damages to rights-of-way as specified in easements.

Historic, Cultural and Archaeological Resources

1. NWN shall retain a qualified archaeologist to monitor construction activity in the areas of sites 35CO41, 35CO39 and all grading and excavation activities associated with the Nehalem River crossing near Natal.
2. NWN shall locate the 24-inch diameter pipeline as described in its application for amendment, pages 108 through 111. Specifically, NWN shall route the 24-inch pipeline as follows, unless NWN in consultation with a qualified archaeologist identifies another location which has less impact to these sites: in the vicinity of 35CO41, on the northeast side of the existing 16-inch pipeline; in the vicinity of ORCO6, on the eastern side of the highway; in the vicinity of ORCO5, on the east side of the existing pipeline; in the vicinity of 35CO40, about 150 meters southwest of the site; in the vicinity of 35CO38, on the west side of the existing pipeline; in the vicinity of ORCO4, on the north side of the existing pipeline; in the vicinity of ORCO3, immediately adjacent to the existing pipeline; in the vicinity of 35CO39, on the east side of the existing pipeline.
3. If any artifacts or other cultural materials that might qualify as "archaeological sites" or "archaeological objects" are identified during monitoring, all ground-disturbing activities in the area will cease until the archaeologist can evaluate their potential significance. If the materials are potentially eligible for listing on the National Register of Historic Places or likely to qualify as archaeological sites or objects, NWN will consult with the SHPO and comply with archaeological permit requirements administered by the SHPO (currently set forth in OAR chapter 736, division 51).

Socio-Economic Impact

NWN shall obtain all required permits from the Oregon Department of Transportation for construction in public road right-of-way and shall conform to the Standard Specifications for Highway Construction – 1996, Oregon Department of Transportation, Section 00220 – Accommodation For Public Traffic. Ambulances, fire trucks and police shall be afforded immediate passage.

Waste Minimization

1. NWN shall transport construction waste materials to an appropriate recycling facility or to an approved sanitary landfill for nonrecyclable goods. NWN shall collect scrap steel and welding rod for transportation to a recycling facility. Geotextile and straw bales shall be transported to an approved landfill.
2. Water used for pressure testing shall be disposed of in a manner consistent with approved permits.

Retirement

Prior to termination of the Site Certificate, NWN shall retire the pipeline site sufficiently to

restore it to a useful condition. Site restoration shall include, but not be limited to, steps to:

(a) Remove any hazardous material stored in buildings or located in process equipment and dispose of them following applicable state hazardous materials statutes and rules,

(b) Remove above ground portions of all pipelines, and cut and cap the remaining portion in five mile increments and at each end. NWN shall purge the pipeline to ensure that all natural gas is removed.

(d) If necessary, revegetate the area, including pipeline right of ways, to prevent erosion and encourage habitat development,

(e) Inspect all pipelines and remove any hazardous materials found, and dispose of hazardous materials generated from cleaning the pipelines in accordance with applicable state hazardous materials statutes and rules.

C. Conditions Related to Public Health and Safety Standards at OAR 345 Division 24

Under ORS 469.401(2), EFSC must impose conditions in the site certificate for the protection of public health and safety. Throughout this order are conditions related to other decisional criteria that are ultimately intended to protect public health and safety. The following conditions protect public health and safety specifically with regard to EFSC standards for surface facilities related to underground natural gas storage and natural gas pipelines.

1. The pipeline shall be constructed and operated in accordance with 49 CFR 192 regulations, and shall include isolation valves as specified in 49 CFR 192.179. Twenty four inch valves and cross ties shall be installed adjacent to the valves on the existing 16-inch pipeline.

2. NWN shall maintain a program to monitor the pipelines to ensure protection of public health and safety, including but not be limited to:

(a) pressure sensing devices positioned on the pipelines at Miller Station to relay information to both Miller Station and the Portland gas control centers.

(b) high and low pressure alarms monitored on a 24 hour basis to detect and locate areas where pressure variations may indicate abnormal conditions, and

(c) emergency response personnel on duty 24 hours a day, at Miller Station or in Portland, trained to respond to situations that require immediate attention.

3. The following specifications from NWN's "South Mist Feeder Looping Project - Design Summary" dated February 19th 1999 are deemed commitments by NWN:

a) NWN shall specify pipe that meets the requirements for Class 3 locations as defined at 49 CFR 192.5 (March 15, 1999). NWN shall specify .375 inch wall thickness and 52,000 lb. tensile strength in all sections of the pipeline.

b) NWN shall perform 100% X-ray testing of all welds on the 24 inch pipeline.

c) NWN shall maintain at least 24 inches of clearance between the pipeline and any underground structure, including the existing 16 inch line.

d) NWN shall maintain a minimum of 48 inches of pipe cover in all locations, and 60 inches in timberland or cultivated land.

e) NWN shall hydrostatically test the pipeline at a minimum of 1080 psig in all sections.

f) NWN shall use at least a 12 mil thick fusion bonded epoxy (FBE) coating on the pipeline, except that pipe used for road crossings shall have a 25 mil FBE coating.

4. Program Development Requirements: Prior to commencement of operations on the 24 inch pipeline, NWN shall develop and obtain OOE approval for the following programs:

a) Training of personnel responsible for patrolling the pipeline, with emphasis on early recognition of conditions indicating increased landslide hazard.

b) Accelerated pipeline surveillance program with provisions for increased surveillance in extreme weather years. The program shall include recommendations by a geotechnical engineer for locations that warrant accelerated surveillance in excess of the periodic patrolling requirements for the pipeline in general.

c) Training of personnel responsible for drainage control, with emphasis on identifying areas where pipeline installation could increase the drainage hazard and on implementing effective solutions.

d) Continuing investigation of internal inspection devices with the capability to detect internal flaws, corrosion, and other pipeline defects ("smart pigs"), and a program for utilization of such devices commensurate with their availability and reliability.

e) Development of criteria to identify the level at which NWN will excavate pipe sections for stress relief, based on strain gauge readings.

D. Permitting Requirements of Agencies Other than EFSC

The Council finds that the NWN Application complies with the requirements for the following permits, subject to conditions recommended in consultation with the affected agencies:

1. Removal/Fill permits from the Division of State Lands, subject to the conditions listed in section IV.D.1 of the Final Order.
2. Limited Water Licenses from the Water Resources Department, subject to the conditions listed in section IV.D.2 of the Final Order
3. Water Pollution Control Facilities (WPCF) permits from Department of Environmental Quality, subject to the conditions listed in section IV.D.3 of the Final Order.

Issued April 9, 1999

Terry Edvalson, Chair
Energy Facility Siting Council

NOTICE OF RIGHT TO APPEAL THE COUNCIL'S DECISION

Any person who requested a contested case proceeding on this site certificate amendment may appeal the Council's decision in this final order. The Oregon Supreme Court has jurisdiction over an appeal of this decision of the Council. A person who is entitled to judicial review and who wishes judicial review must file a petition for judicial review with the Oregon Supreme Court within 60 days after the date of service of this order. Judicial review is provided in Oregon Revised Statutes, Chapter 469.403.