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BEFORE THE ENERGY FACILITY SITING COUNCIL
OF THE
STATE OF OREGON

IN THE MATTER OF THE APPLICATION)	
FOR A SITE CERTIFICATE FOR THE)	PROPOSED ORDER
NW NATURAL SOUTH MIST PIPELINE)	SEPTEMBER 19, 2002
EXTENSION)	

Issued by

Oregon Office of Energy
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OREGON OFFICE OF ENERGY
PROPOSED ORDER
NW NATURAL
SOUTH MIST PIPELINE EXTENSION

I. Introduction and Background

The Oregon Office of Energy (“OOE” or “the Office”) issues this Proposed Order (“Order”) pursuant to Oregon Revised Statutes (“ORS”) 469.370. This Order addresses the Application for a Site Certificate (“ASC” or “application”) for the construction and operation of a proposed 24-inch natural gas pipeline, which would travel approximately 62 miles through primarily rural land in Washington, Marion and Clackamas counties, ending on Barnards Road between Molalla and Canby. The proposed facility is known as the South Mist Pipeline Extension (“SMPE” or “pipeline”).

Northwest Natural Gas Company, (“NWN”) submitted the application. NWN is an Oregon corporation and is a regulated public utility supplying natural gas service to northwest Oregon.

The Office based this Order on its review of the ASC and the comments and recommendations on the ASC by the public and by the agencies, local governments and tribes identified in accordance with Oregon Administrative Rules (“OAR”) 345-021-0050.

The pipeline is an energy facility as defined at ORS 469.300(9)(a)(E)(ii), and therefore may not be constructed unless the Council has issued a site certificate. ORS 469.320.

It is the public policy of the State of Oregon that "the siting, construction and operation of energy facilities shall be accomplished in a manner consistent with protection of the public health and safety and in compliance with the energy policy and air, water, solid waste, land use and other environmental protection policies of this state." ORS 469.310.

The Council must assure that the site certificate contains "conditions for the protection of the public health and safety, for the time for completion of construction, and to ensure compliance with the standards, statutes and rules described in ORS 469.501 and ORS 469.503." ORS 469.401(2).

A site certificate issued by the Council binds the state and all counties and cities and political subdivisions of Oregon. Once the Council issues the site certificate, the responsible state agency or local government must issue any necessary permits that are addressed in the site certificate without further proceedings. ORS 469.401(3).

Based upon the discussion and conclusions contained in this Order, the Office recommends that the Council grant the site certificate for the proposed pipeline subject to the conditions stated in this Order.

The definitions in ORS 469.300, OAR 345-001-0010 and the Project Order apply to terms used in this order unless stated otherwise.

1 **II. Procedural History**

2 Pursuant to ORS 469.330, NWN submitted a Notice of Intent (“NOI”) on September 30, 1999.
3 The NOI described four potential corridors for the proposed pipeline, all primarily in rural lands
4 in Washington, Marion and Clackamas counties. The NOI included a corridor selection study
5 describing how the corridors had been selected and discussing the reasons why NWN preferred
6 one of the four. For purposes of the NOI, each corridor was ½ mile wide.
7

8 NWN distributed the NOI to state agencies, the Confederated Tribes of the Grande Ronde and
9 Siletz and local governing bodies as required by ORS 469.350(2) and OAR 345-020-0040. The
10 Office sent public notice of the NOI to persons on the Council’s general mailing list and to all
11 property owners meeting the requirements of OAR 345-020-0011(1)(f). The Office held three
12 informational public meetings on the proposed facility on November 8, 9 and 10, 1999. The
13 meetings were located in Sherwood, Hillsboro and Canby, Oregon.
14

15 Pursuant to ORS 469.480, the Council appointed the Commissioners of Washington, Marion and
16 Clackamas Counties, and the City Councils of Aurora, Hillsboro and Sherwood as a special
17 advisory group. Pursuant to ORS 469.330, OOE issued a Project Order on March 27, 2000.
18

19 NWN submitted the ASC to the Office on March 22, 2001. NWN also sent copies of the ASC
20 to agencies, local governments and tribes listed in OAR 345-020-0040(1), accompanied by a
21 letter from the Office that asked the recipients to review the ASC for completeness and reply to
22 the Office by May 11, 2001. Although not required by rule, OOE also issued notice of the ASC
23 to the Council’s general mailing list and to property owners adjacent to the site as described at
24 OAR 345-021-0010(1)(f). The notice requested public comment on the ASC by May 10, 2001.
25

26 The ASC described one corridor known as the “Preferred” corridor. The Preferred Corridor was
27 not identical to any of the corridors described in the NOI. NWN adjusted its preferred corridor
28 from the NOI, based on a combination of public comments, concerns raised by OOE, and field
29 study conducted by NWN personnel. The Preferred Corridor requested in the ASC is 200 feet
30 wide. The ASC also described 7 segments of varying length along the preferred corridor where
31 an alternate corridor was offered for Council consideration. The ASC did not give specific
32 information about where within the 200 feet the pipeline would be, but rather asked for Council
33 approval over the entire 200 foot width. NWN did not ask the Council to choose between the
34 preferred corridor and the seven alternates, but asked the Council to approve the preferred
35 corridor and all alternatives, allowing NWN to choose the exact alignment after site certification.
36

37 On May 17, 2001 OOE determined that the ASC was not complete and issued a Request for
38 Additional Information (RAI). NWN responded to the RAI on July 3, 2001.
39

40 On June 28, 2001 NWN submitted a supplement to the ASC, changing the preferred corridor in
41 some locations and offering different alternatives in others. In all, the supplement described
42 changes to the preferred and alternate corridor in four locations, and provided NWN’s reasons
43 for requesting the changes and for concluding that the amended corridor meets the applicable
44 standards of the Council and other state agencies. In response to further OOE requests, NWN
45 also supplied, under separate cover, a “conceptual mitigation plan” for environmental impacts
46 and an agricultural mitigation plan for agricultural impacts.
47

48 On September 24, 2001 OOE determined that the ASC, with the June 2001 and July 2001
49 supplements, was complete. OOE also determined that the Conceptual Mitigation Plan and

1 Agricultural Mitigation Plan were also part of the application. For purposes of this Order, the
2 application therefore is the original March 2001 ASC, the June and July supplements, and the
3 Conceptual Mitigation and the Agricultural Mitigation plans.
4

5 OOE mailed notice of the filed application to the Council's general mailing list, adjacent
6 property owners as defined at OAR 345-021-0010(1)(f), and its special mailing list for the SMPE
7 on October 5, 2001, pursuant to OAR 345-015-0190. OOE also mailed the notice, along with an
8 explanatory letter about the review process and additional ASC materials, to agencies, local
9 governments, and tribes, pursuant to OAR 345-015-0200. OOE published notice in the *Canby*
10 *Herald*, the *Oregonian*, and the *Hillsboro Argus*, pursuant to OAR 345-015-0190.
11

12 In its public notices, OOE requested comments on the ASC by November 21, 2001. In all, OOE
13 received over 60 comments on the ASC from the public. OOE addresses public comments in
14 section V of this order.
15

16 OOE issued a Draft Proposed Order on the ASC on July 10, 2002. The Draft Proposed Order
17 recommended approval of the SMPE, with conditions. OOE issued notice to state and local
18 agencies, affected property owners and to all persons who had commented previously during the
19 process, attended meetings on the SMPE, or otherwise asked to be placed on the mailing list for
20 this application. OOE also published the notice in the *Canby Herald*, the *Oregonian*, and the
21 *Hillsboro Argus*. The notice gave date, time and location of hearings on the Draft Proposed
22 Order, which OOE held on August 6, 2002 in Canby and on August 12, 2002 in Hillsboro. The
23 notice stated that OOE would accept comments on the Draft Proposed Order, either orally at one
24 of the hearings or in writing. The OOE stated that it must receive written comments by 5:00
25 p.m. on August 12, except for written comments that could be hand delivered at the hearing on
26 the evening of August 12.
27

28 OOE received more than 100 comments on the Draft Proposed Order, either in writing or at one
29 of the hearings. Section V of this order includes a summary of the issues raised on the Draft
30 Proposed Order.
31

32 **III. General Findings**

33 **A. Description of the Proposed Facility**

34 The proposed facility is a 24-inch diameter natural gas pipeline, approximately 60 miles long. It
35 begins at the Bacona Blowdown Station, which is located in forest land north of Dairy Creek just
36 south of the Washington and Columbia County border. It extends generally south and east
37 through rural lands in Washington, Marion and Clackamas Counties, ending at the Williams
38 Pipeline Gate Station located northwest of Molalla.
39

40 NWN is proposing the pipeline in order to effectively utilize gas storage capacity at the Mist
41 Underground Natural Gas storage facility. An underground natural gas storage facility provides
42 NWN with a means of balancing relatively constant pipeline gas supplies with widely fluctuating
43 demand. Gas usage is generally lowest during summer months and peaks during the winter. The
44 underground natural gas storage operation consists of a natural gas production field, retrofitted to
45 inject gas back into the ground and withdraw it on a cyclical basis. Gas is injected into storage
46 during off-peak periods and is withdrawn during periods of peak demand.
47

48 Underground reservoir storage requires suitable underground geological conditions in a specific
49 geographic area, and can only be sited where those conditions exist naturally. Mist is one such

1 area because it was, at one time, a producing gas field. The gas stored at Mist is purchased from
2 the interstate natural gas transmission system operated by the Williams Company. NWN
3 proposes this pipeline in order to connect the Mist storage facility with the Williams system.
4

5 A second purpose of this pipeline is to accommodate the growth in demand for natural gas in the
6 western Portland suburbs. The NWN distribution system currently includes major feeder lines
7 serving Hillsboro, Sherwood and Newberg. NWN proposes the SMPE in order to connect with
8 these feeder lines and increase the available supply to these suburbs during peak periods.
9

10 NWN already operates one 16-inch pipeline that connects the Mist storage facility with the
11 distribution system serving the Portland area. NWN operates this pipeline under a Site
12 Certificate issued by the Council in 1989. The 16-inch pipeline is called the South Mist Feeder.
13 It travels south from Mist, crosses the Tualatin Mountains and enters Washington County in
14 forested land north of the Dairy Creek Valley, travels south through Dairy Creek Valley and east
15 along Mountaindale and West Union Roads until it reaches West Union.
16

17 In 1999 the Council amended the South Mist Feeder site certificate, authorizing a 24-inch
18 pipeline parallel to the 16-inch line and located within the same corridor. NWN constructed this
19 24-inch pipeline in 1999. It starts at the Mist storage facility and runs for approximately 30
20 miles, tying in to the 16-inch line at a point called the Bacona Blowdown Station, located in
21 forest land just south of the Washington and Columbia County border. NWN proposes to begin
22 the SMPE at the Bacona Blowdown Station and follow the existing corridor for the 16-inch line
23 until it reaches a valve station at Mountaindale Road. From that point, the SMPE would require
24 all new corridor.
25

26 In most locations, the proposed pipeline will be buried at a depth of 5 feet on average. This
27 depth may vary based on local requirements. The pipeline must be designed and constructed in
28 accordance with federal safety regulations of the US Department of Transportation at 49 CFR
29 192. The maximum allowable operating pressure (MAOP) as established by the hydrostatic
30 pressure test, will be 720 psig. The Oregon Public Utility Commission administers the 49 CFR
31 192 regulations under a delegation from the federal government. The pipeline would be
32 underground its entire length, with the exception of certain above ground valves and inspection
33 points that are required by the federal code.
34

35 Although NWN requests a 200-foot wide corridor, the final site will be limited to a 40-foot wide
36 right of way. During the construction period, there will be a construction easement, generally 80
37 feet wide (the "Construction Easement"). The full width of the Construction Easement will be
38 used only during construction. It will be restored after construction and returned to its previous
39 use. NWN also will require a permanent easement directly over the pipeline for maintenance
40 and safety (the "Maintenance Easement"). The Maintenance Easement will be restored to its pre-
41 construction condition and use except that large trees or other vegetation with potentially
42 damaging root structures will not be allowed to grow in close proximity to the pipeline.
43

44 The Maintenance Easement will be approximately 40 feet wide in areas that are not adjacent to a
45 public right-of-way. Where the pipeline is adjacent to a public right-of-way, OOE has
46 recommended conditions that the easement be about 20 feet. The pipeline will be located
47 approximately in the center of the easement. In areas where the new pipeline will be placed next
48 to the 16-inch pipeline, the existing easement will be widened by an additional 10 feet, for a total
49 width of 50 feet.

1
2 NWN included 44 aerial photographic panels with the ASC, submitted as Appendix K-2 (and
3 supplemented in July 2001). These panels are the clearest representation of the proposed
4 corridor location, and we refer to them throughout this order. Among other things, the panels
5 show the expected location of temporary lay-down areas that will be required in connection with
6 the construction of the proposed facility. Portions of these proposed lay-down areas are outside
7 of the 200-foot pipeline corridor. The approval granted by EFSC includes approval for the
8 construction-related use of the temporary lay-down areas. To ensure that this use complies with
9 applicable siting standards, this proposed order contains conditions relating to the temporary use
10 of these areas. NWN has also indicated that certain other areas will be used for pipeline
11 construction staging in connection with construction of the proposed facility. This proposed
12 order authorizes only the use of those areas shown on the 44 aerial photographs in Appendix K-2
13 as supplemented. In the event that the use of other areas is necessary in connection with the
14 construction of the proposed facility, NWN will (to the extent such uses may be within the
15 Council's jurisdiction) address the use of those areas through an amendment to the site
16 certificate.

17
18 Because these laydown areas may extend outside the nominal 200-foot corridor described in this
19 order, OOE recommends conditions requiring that:

- 20
- 21 1) Prior to the temporary, construction-related use of any laydown area shown on Appendix K-2
22 of the ASC, as supplemented in July 2001, that is outside the 200-foot pipeline corridor (the
23 temporary laydown areas) , NWN shall provide the Office of Energy with a map, aerial
24 photograph or other depiction of the proposed temporary laydown area, together with a
25 description of the temporary laydown area, including the zoning, physical conditions,
26 existing uses, and any fieldwork studies performed at the temporary laydown area.
27
 - 28 2) Use of the temporary laydown areas shall conclude within one month of the date construction
29 is complete. Mitigation for impacts to habitat and farm land shall be completed as soon as
30 reasonably possible after the temporary use is concluded.
31
 - 32 3) The temporary laydown area shall not (1) be located within an area identified as Category 1
33 or 2 habitat; or (2) contain threatened or endangered species identified in Exhibit Q. It is
34 expressly understood that the approval is only for temporary uses and no permanent uses will
35 be allowed in these areas.
36
 - 37 4) NWN shall restore, as nearly as possible, to its former condition any agricultural land and
38 associated improvements that are damaged or otherwise disturbed by the siting, maintenance,
39 repair or reconstruction of the facility. Mitigation conditions applicable under the Council's
40 Soils standard, OAR 345-022-0022, shall apply to any temporary laydown area.
41

42 **B. Location of the Proposed Facility**

43 The SMPE would begin at a point called the Bacona Blowdown Station, which is located in
44 forested land north of Dairy Creek Valley, near the border between Washington and Columbia
45 Counties. It would extend from the Bacona Blowdown Station southeast across Washington,
46 Marion, and Clackamas Counties and would terminate at the Williams Pipeline Gate Station
47 located northwest of Molalla, on Barnards Road in Clackamas County. The Preferred Corridor
48 crosses the following major roadways and railroads: W & P Railroad in North Plains; Highway
49 26 in North Plains; W & P Railroad in Hillsboro (three locations); Highway 8 in Hillsboro;

1 Highway 219 south of Hillsboro; Highway 10 south of Hillsboro; Highway 210 near Scholls;
2 Highway 99W in Sherwood; W & P Railroad in Sherwood; W & P Railroad near Charbonneau;
3 I-5 at Aurora; Southern Pacific Railroad northwest of Aurora; Highway 99E near Aurora; and
4 Southern Pacific Railroad southeast of Aurora. The Preferred Corridor also crosses three major
5 waterways: the Tualatin River; the Willamette River; and the Pudding River.

6
7 The following route description is for the 200-foot Preferred Corridor and the Alternate Corridor
8 Segments. The corridor and corridor segments have also been overlain onto 44 aerial photos,
9 which provide more accurate visual representations of them. Figure K-2 of the ASC shows this
10 in reduced size and is probably the clearest depiction of the pipeline location in the Application.
11 For purposes of this description, road names are used to identify the location of the Preferred
12 Corridor and Alternate Corridor Segments, but this is not intended to imply that the specific
13 location of the pipeline will be within the public rights-of-way for the named roads. The
14 following description does not attempt to deal with the specific location of the pipeline within
15 the Preferred Corridor or Alternate Corridor Segments.

16
17 The Preferred Corridor for the SMPE begins in Washington County at the Bacona Blowdown
18 Station, which is the terminus of the 24-inch loop which NWN added to the South Mist Feeder
19 pipeline in 1999 under amendment 2 to its existing site certificate. It continues through the
20 Dairy Creek Valley, paralleling in close proximity to the existing 16-inch South Mist Feeder.
21 The Preferred Corridor deviates from the existing easement for the 16-inch pipeline just north of
22 Mountindale Road. At this point, NWN proposes a Preferred and Alternate corridor segment.
23 Both options include a bore under Dairy Creek near its intersection with Mountindale road.
24 From this intersection, the route proceeds south along Mountindale Road and Dersham Road to
25 the north side of State Highway 26, where it turns to the east and runs parallel to the highway
26 right-of-way. The route continues east approximately one-half mile to the highway overpass and
27 then turns south, crossing under the highway overpass and the railroad right-of-way.

28
29 At this point, both the Preferred Corridor and an Alternate Corridor Segment have been
30 identified. The Preferred Corridor aligns with Milne Road and continues south to Zion Church
31 Road, turns east, and then proceeds to Davis Road. The Alternate Corridor Segment, known as
32 the Milne/Gordon Road Alternate, proceeds east along the south side of the Highway 26 right-of-
33 way, turns south along Gordon Road, proceeds south to Zion Church Road, and then turns west
34 and proceeds to Davis Road. The Preferred Corridor and the Milne/Gordon Road Alternate
35 intersect at Davis Road and Zion Church Road where both turn south along Davis Road.

36
37 The Preferred Corridor then proceeds south to Wren Road, where it turns east and then south
38 along Leisy Road. It continues south to the intersection with Hornecker Road and Padgett Road,
39 where it continues south along the Padgett Road public right-of-way for approximately one-half
40 mile and then traverses private land to the west. At this point, NWN has again identified
41 Preferred and Alternate options. Both options generally parallel Dairy Creek and lead to an
42 underground bore south across State Highway 8. The corridor continues cross-country in a
43 general southeasterly direction and then turns southerly just west of Highway 219, which it
44 parallels until the first crossing of the Tualatin River.

45
46 The Preferred Corridor intersects Highway 219 just south of the Tualatin River and continues
47 south to just south of Burkhalter Road, where it traverses cross-country in a generally easterly
48 direction along property boundaries and then intersects Burkhalter Road near Rood Bridge Road.

1 The corridor continues east past Rood Bridge Road and traverses cross-country in a southeasterly
2 direction to the second crossing of the Tualatin River. Just south of the Tualatin River, the
3 corridor intersects River Road and continues southerly and southeasterly along River Road
4 where it transitions to Highway 210. In the vicinity of Tuefel Hill Road, the corridor traverses
5 cross-country until it intersects Pleasant Valley Road and then proceeds southbound. Just south
6 of the Tualatin River National Wildlife Refuge, the corridor traverses cross-country to the south,
7 crossing the Tualatin River and continuing south to Scholls-Sherwood Road.
8

9 At this point, NWN has identified a Preferred corridor and two Alternate corridor segments. The
10 Preferred corridor aligns eastbound along Scholls-Sherwood Road and transitions onto Elwert
11 Road southbound. It diverges from Elwert Road at Chicken Creek, where the corridor traverses
12 southwest cross-country to Krueger Road. The first minor alternate to the Preferred Corridor, the
13 Edy/Elwert Road Alternate, continues further south along Elwert Road, and across Edy Road, for
14 approximately one-half mile and then proceeds cross-country to the west, turning south and east
15 along property lines to Haide Road, until it intersects the Preferred Corridor. The second
16 Alternate Corridor Segment, the Eastview Road Alternate, turns west onto Scholls-Sherwood
17 Road, continues west to Stark Road, turns south and proceeds to Lebeau Road, turns east and
18 then south traversing cross-county, crosses Edy Road, proceeds south along Eastview Road, and
19 traverses cross-country to Krueger Road. The Preferred Corridor and the Eastview Road
20 Alternate join at the same location at Krueger Road and proceed south cross-country to Chapman
21 Road.
22

23 At this point, the Preferred Corridor turns east and crosses Highway 99W and continues east
24 along Brookman Road. The corridor follows Brookman Road to a point near the
25 Washington/Clackamas County line, traverses cross-country to the south and intersects with
26 Ladd Hill Road. It continues south and east following Ladd Hill, Pleasant Hill, McConnell, and
27 Tooze Roads, and then turns south onto Baker Road.
28

29 At this point, NWN has identified the Preferred Corridor, which continues along Baker Road,
30 and an Alternate Corridor Segment, the Baker Road Alternate, which would provide a more
31 direct lineup for the directional drilling under the Willamette River. The Preferred Corridor and
32 the Baker Road Alternate join at the proposed laydown area, where the Preferred Corridor
33 continues south cross-country, passing under the Willamette River and emerging in close
34 proximity to Butteville Road approximately one-half mile west of Graham Road. The Preferred
35 Corridor continues cross-country to the south, crosses the Marion/Clackamas County line,
36 continues to Arndt Road, and turns east.
37

38 At this point the Preferred Corridor proceeds eastbound, crosses under I-5, transitions from
39 Marion to Clackamas County, and continues east to the Hubbard cutoff, where it turns south.
40 The corridor continues south a short distance and traverses to the east on private property to
41 Airport Road. Before the Preferred Corridor's intersecting with Airport Road, NW Natural has
42 identified another Alternate Corridor Segment, the Aurora Airport Alternate, through the Aurora
43 Airport. The Aurora Airport Alternate and the Preferred Corridor join at the intersection with
44 Airport Road.
45

46 The Preferred Corridor then turns south onto Airport Road, proceeds a short distance to the
47 south, turns east and traverses private property, crosses under the Pudding River, and emerges in
48 the vicinity of Anderson Road. It follows Anderson Road for a short distance, turns south about

1 600 feet before Barlow Road, and crosses Highway 99E. The corridor intersects Barlow Road,
2 turns south, and follows Barlow road south until a point just before Zimmerman Road.
3

4 At this point, NWN has again identified a Preferred Corridor and an Alternate Corridor. The
5 Alternate Corridor turns east along Zimmerman Road, travels south a short distance, follows
6 Heinz Road east and Dryland road south. At the intersection of Dryland and Barnards Roads, the
7 Alternate corridor travels a short distance east and terminates at the Molalla Gate Station.
8

9 The Preferred Corridor is similar but makes less use of roads and more use of property lines. It
10 traverses easterly cross-country just north of Zimmerman Road and proceeds east to Oglesby
11 Road, where it then turns south. The Preferred Corridor travels east again on private land just
12 north of Heinz Road. It continues east past Dryland Road, and turns south along property lines
13 to the Molalla Gate Station.
14

15 **IV. Recommendations on Compliance with Council Standards**

16 **A. EFSC Standards in OAR Chapter 345, Division 22**

17 **1. OAR 345-022-0010 Organizational Expertise**

18 This standard has four sections. Only the first section applies to this application. Section (2)
19 allows the applicant to show compliance based on an approved ISO 9000 or 14000 program.
20 NWN has not claimed to have such a program. Sections (3) and (4) concern permits needed for
21 construction or operations of the facility that will be obtained not by the applicant but by a third
22 party. NWN has not identified any third parties and will seek all required permits directly.
23 Therefore only section (1) of the standard applies to this application.
24

25 To issue the site certificate, the Council must find that NWN has a reasonable probability of
26 successful construction and operation of the proposed facility considering NWN's experience,
27 the availability of technical expertise to NWN, and NWN's past performance in constructing and
28 operating other facilities, including, but not limited to, the number and severity of regulatory
29 citations, in constructing or operating a facility, type of equipment, or process similar to the
30 proposed facility.
31

32 **Discussion**

33 NWN is a 140-year old company whose core business is the local distribution of natural gas.
34 NWN or its subsidiary Oregon Natural Gas Development Company ("ONG") has operated the
35 Mist underground storage facility and South Mist Feeder pipeline since 1989. In 1997, the
36 Council approved a major expansion to the Mist storage facility, authorizing the development of
37 new storage areas in Calvin Creek and the installation of two 16-inch pipelines connecting the
38 Calvin Creek storage area to the compressor station for the Mist storage facility. NWN owns
39 and operates natural gas pipelines throughout its service territory in western Oregon and southern
40 Washington. In 1999, NWN constructed 30 miles of 24-inch pipeline, identical in design to the
41 pipeline proposed in this application. The 1999 pipeline crossed a variety of farm and forest
42 lands, including relatively steep terrain, wetlands and high value fish and wildlife habitat. The
43 1999-pipeline was constructed using similar techniques to those proposed in this application,
44 including the use of underground bores for major stream and wetland crossings. OOE and
45 Oregon Department of Fish and Wildlife personnel inspected the mitigation and post-
46 construction site restoration activities during and after construction and found them generally
47 satisfactory.
48

1 The Project proposed in this application will be directed by the same NWN personnel who built
2 the 30-mile expansion of the South Mist Feeder in 1999 and have been managing the existing
3 South Mist Feeder pipeline. Several of these individuals were involved in the original
4 construction in 1989.

6 ***Past Performance***

7 The Mist storage facility has been in operation since 1988. During that time, the facility has
8 received no safety citations from OSHA and only one lost-time accident, which occurred in
9 1997. In connection with its underground storage operations, NWN has received no regulatory
10 citations from the Oregon Department of Geology (DOGAMI), which has permitting authority
11 over the underground gas storage reservoirs.

12
13 The existing South Mist Feeder has been in operation since 1989, under an EFSC Site Certificate
14 and under jurisdiction of the Oregon Public Utility Commission (“OPUC”) for compliance with
15 federal pipeline safety regulations at Title 49, Part 192, Code of Federal Regulations (49 CFR
16 192). In February 2001 the OPUC Chief, Pipeline Safety issued a letter regarding Application,
17 attached to Appendix D-1. The letter states in part:

18
19 "It has been the experience of this office that NWN closely adheres to the pipeline
20 safety regulations, and any discrepancies noted during PUC investigations have
21 been dealt with in a competent and cooperative manner. The design and
22 construction activities are of critical importance because once the pipeline is buried,
23 opportunities to physically inspect the pipeline are rare. The practices followed by
24 NWN in these two areas are considered to be excellent, which provides a high level
25 of confidence in public safety and increased service life of the pipeline."
26

27 **Conclusion**

28 Based on NWN's experience with its existing underground storage facility and the South Mist
29 Feeder pipeline, the recent experience constructing and operating 24-inch addition to the South
30 Mist Feeder pipeline and its past regulatory record with EFSC, DOGAMI and OPUC, the Office
31 recommends the Council find that NWN has the organizational expertise to construct, operate
32 and retire the SMPE in compliance with Council standards and with the conditions of the site
33 certificate. The Office recommends the conditions relevant to this standard listed in section VI
34 of this Order.

35 36 **2. OAR 345-022-0020 Structural Standard**

37 To issue a site certificate the Council must find that:

- 38 1) The applicant, through appropriate site specific study has adequately characterized the
39 site as to seismic zone and expected ground motion and ground failure, taking into
40 account amplification, during the maximum credible and maximum probable seismic
41 event;
- 42 2) The applicant can design, engineer, and construct the facility to avoid dangers to human
43 safety presented by seismic hazards affecting the site that are expected to result from all
44 maximum probable seismic events. As used in this rule ‘Seismic Hazard’ includes ground
45 shaking, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement,
46 and subsidence;
- 47 3) The applicant, through appropriate site specific study, has adequately characterized the
48 site and its vicinity that could, in the absence of a seismic event, adversely affect, or be
49 aggravated by, the construction and operation of the proposed facility; and

- 1 4) The applicant can design, engineer and construct the facility to avoid dangers to human
2 safety presented by the hazards identified in section (3).
3

4 **Discussion**

5 NWN retained the services of a consulting firm, URS Corporation (hereafter referred to as
6 "URS"), to perform a geotechnical investigation of the proposed alignment. The application
7 includes a summary of URS' consulting report as Exhibit H, followed by the entire report
8 included as Appendix H-1. NWN has also submitted detailed responses to questions posed by
9 the Office of Energy as part of the completeness review.

10
11 NWN's evaluation included both regional and site-specific studies that form the basis for this
12 application summary. The following discussion items are organized to parallel the 4 sections of
13 the Structural Standard listed above.
14

15 **(1) Site Characterization – Seismic Hazards**

16 URS performed a state-of-practice seismic hazard analysis for the proposed pipeline. URS
17 analyzed expected ground motions, ground failures, and likely amplification of shaking within
18 specific soils during the maximum credible and maximum probable seismic events. The seismic
19 hazard analysis is summarized here and is set forth in detail in Section 5 of Appendix H-1.
20

21 The Structural Standard requires analysis of the "maximum credible" and the "maximum
22 probable" seismic events in order to determine their potential effect on the safe construction and
23 operation of the proposed pipeline. The application requirements in OAR Chapter 345, Division
24 21, define "maximum probable earthquake" ("MPE") as the "maximum earthquake that could
25 occur under the known tectonic framework and that has a 10 percent chance of being exceeded in
26 a 50-year period." The "maximum credible earthquake" ("MCE") is commonly defined as "the
27 largest earthquake that is capable of being produced from a source, structure, or region, under the
28 currently known tectonic framework. It is a rational and believable event which can be
29 supported by all known geologic and seismologic data. An MCE is determined by judgment
30 considering the geologic evidence of past movement and the recorded seismic history of the
31 area." In the case of each of the MPE and the MCE, URS analyzed the strength of shaking likely
32 to result at 12 locations along the pipeline. URS also analyzed the earthquake-induced rock and
33 soil movements that could pose risks to the pipeline along the corridor.
34

35 URS conducted a literature study to determine the characteristics of all known geologic faults in
36 the region believed to have moved and caused earthquakes in recent geologic time. The faults
37 are described in Section 5.2.3 of Appendix H-1. URS also gathered and analyzed records of
38 earthquakes in the region during historical times. A catalogue of all known historical
39 earthquakes in northwestern Oregon and southwestern Washington is included in Appendix H-1
40 at Figure 5.2.
41

42 URS notes that there are three major sources of earthquakes that could affect the SMPE. First,
43 the Juan de Fuca Plate is being thrust at a rate of about four centimeters per year beneath the
44 North American Plate all along the Oregon coast west of the shore. This is a very large fault,
45 referred to as a "subduction zone." When accumulated stress between the Juan de Fuca and
46 North American Plates is released along the entire coast, the fault is capable of producing a very
47 large (about magnitude 9) earthquake, referred to as a "mega-thrust" earthquake, along the
48 subduction zone. In addition, as the Juan de Fuca Plate descends beneath the North American
49 Plate, stresses within the plate produce earthquakes up to about magnitude 7. Finally, the

1 oblique northeasterly compression of the Juan de Fuca Plate against the North American Plate
2 causes faulting, folding, and rotation in the crustal rocks of northeastern Oregon, producing
3 earthquakes along faults such as the Portland Hills Fault, the Mount Angel Fault, and the
4 Mollala-Canby Fault.

5
6 The effect on the SMPE of earthquakes from the three major sources listed above depends on (1)
7 the magnitude of shaking at the source of the earthquake and (2) the distance of that source from
8 the pipeline. URS used information about the length and geometry of regional faults to estimate
9 the MCE that would result from movement on each fault in the region considered more than 50
10 percent likely to be active ("seismogenic"). Then, based on the distance of each fault from the
11 Preferred Corridor, URS calculated the maximum ground motion, or shaking, that would occur
12 within the corridor from each such MCE. URS concluded that the largest credible earthquakes
13 from the nearby Portland Hills, Mt. Angel, and Mollala-Canby Faults (estimated MCE
14 magnitudes of 7.2, 6.8, and 7.1, respectively) could shake the SMPE more strongly than a mega-
15 thrust earthquake along the coastal subduction zone (MCE magnitude 9.1).

16
17 URS then compared motions possible within the Preferred Corridor to the spectrum of motions
18 expected under the Oregon Building Code Seismic Zone for the region. The State of Oregon
19 Structural Specialty Code, based on the 1997 Uniform Building Code, contains design standards
20 for construction within earthquake zones that are classified according to the expected severity of
21 ground motions from earthquakes. Much of southern Oregon coast is classified as Zone 4, with
22 expected severe earthquake shaking. The region containing the proposed pipeline is classified as
23 Zone 3. Ground accelerations expected within Zone 3, and presumably tolerated by structures
24 built to Zone 3 design standards, are about three-tenths the force of gravity, or 0.30g. For all but
25 two area faults, the expected ground accelerations at the corridor were within Zone 3 criteria, as
26 shown on Figure 5.12 of Appendix H-1.

27
28 After determining the MCE for faults likely to be active in the vicinity of the SMPE and the
29 resultant ground motions along the Preferred Corridor, URS applied accepted probabilistic
30 analysis methods to determine the MPE from the known faults. This analysis involves use of all
31 known information about the timing and magnitude of known historical earthquakes in the
32 region and geologic evidence of prehistoric movement along faults.

33
34 Figure 5.11 of Appendix H-1 summarizes the maximum probable ground motions at 12 locations
35 along the Preferred Corridor from earthquakes likely to occur with a frequency of every 500
36 years and every 5,000 years. The shaking likely once within 500 years corresponds to the MPE
37 standard: a 10 percent chance of being exceeded in a 50-year period. URS also considered the
38 soils at each of the 12 locations and applied amplification factors to determine the likely shaking
39 under site-specific conditions. Peak accelerations along the corridor route are listed in Table 5.7
40 of Appendix H-1. All peak accelerations from the MPE fall below Uniform Building Code Zone
41 3 criteria.

42 43 Earthquake-Induced Hazards

44 In addition to the direct impacts of ground shaking, other related earthquake-induced hazards
45 exist. URS considered the possibility of damage to the proposed pipeline during the MPE caused
46 by: (1) ground motion amplification; (2) seismic slope instability; (3) surface fault displacement;
47 (4) liquefaction; (5) lateral spreading; and (6) subsidence.

48 49 Ground Motion Amplification

1 As mentioned above, URS calculated site-specific ground motions at 12 locations along the
2 proposed pipeline corridor. For each of these sites, they applied amplification factors to
3 determine the likely shaking under site-specific conditions. All peak accelerations from the MPE
4 fall below Uniform Building Code Zone 3 criteria.
5

6 Seismic Slope Instability

7 Slope stability is discussed further in the following section. To evaluate seismic slope stability
8 (versus other triggering mechanisms such as heavy rainfall), URS incorporated seismic
9 coefficients into the site-specific modeling of the Sherman Mill slide area. Factor of safety
10 calculations were used to evaluate stability. The calculated factor of safety under seismic
11 loading was determined to be acceptable (specifics are included in Appendix C of the report in
12 H-1: Section 1.6.2).
13

14 Surface Fault Displacement

15 Several faults are mapped in the proposed site area vicinity, and the probability of fault rupture is
16 low but not zero. The Sherwood fault is the only mapped fault trace that is crossed by the
17 corridor. URS evaluated the Sherwood fault in detail, and, as part of its evaluation, URS
18 considered studies by Geomatrix Consultants (1995) and by Dr. Jeff Unruh and others (Unruh et
19 al., 1994) that assessed the Sherwood fault for its seismogenic potential. Both studies concluded
20 that the fault was not active based on its poor geomorphic, aeromagnetic and gravity expression.
21 URS also analyzed aerial photographs along the fault, near the proposed pipeline alignment to
22 evaluate the geomorphic character of the fault. Based on the conclusions of the two previous
23 studies and its own photogeologic analysis, URS concluded that there is no compelling data, to
24 date, to suggest that the Sherwood fault is active.
25

26 Liquefaction and Lateral Spreading

27 URS notes that relative earthquake hazard maps, such as Mabey et al (1997), ascribe a high level
28 of liquefaction susceptibility to both the Tualatin Valley and the nearby Portland reaches of the
29 Willamette and Columbia Rivers. However, the depositional environment, hence geotechnical
30 properties, of the alluvial soils in the Tualatin Valley differ greatly from those of the nearby
31 Willamette and Columbia Rivers. In particular, the former tends to be very fine-grained, with
32 significant amounts of clay, and has a greatly reduced liquefaction potential.
33

34 This was substantiated by URS during the subsurface explorations conducted during the
35 preparation of Exhibit H. The locations for the studies are shown on Figure 2.1.1, and consisted
36 primarily of Cone Penetration Tests (CPT's) coupled with conventional boreholes at selected
37 locations. The gradation criteria mentioned above can not be directly applied to CPT data,
38 because soil samples are not retrieved during probing. However, the CPT data was correlated to
39 soil type using generally accepted procedures developed by Robertson and Campanella (1983),
40 which indicates that the soils of the Tualatin Valley are dominated by fine-grained material, i.e.,
41 plastic clays and silts that would not liquefy during strong ground shaking.
42

43 There are potential areas that are likely to liquefy and spread laterally in a sizeable earthquake,
44 particularly along stream and riverbanks in the study area. URS estimated lateral spread
45 movements on the order of 10 inches or less at the riverbanks during MPE ground shaking. URS
46 subsequently used methods described in O'Rourke and Liu (1999) to analyze the pipeline
47 stresses caused by a design level earthquake. Five failure modes were assessed. These include
48 local buckling due to ground shaking, global buckling due to ground shaking, bending due to
49 buoyancy, bending and tension due to lateral permanent ground displacement (PGD), and

1 buckling due to longitudinal PGD. The calculations assumed a worse-case-scenario for
2 liquefaction triggering along the project corridor. That is, conservative values of liquefaction
3 potential, grain size and topography were used to assess scenarios that would generate a lower
4 bound of safety factor.

5
6 URS results suggest that transverse permanent ground displacements represent the most severe
7 loading condition on the pipeline due to seismic activity. This conclusion agrees with the few
8 available case histories reported in the literature that were discussed in Exhibit H of the
9 Application. URS notes that all of the factors of safety well exceed unity, which imply safe
10 operating conditions.

11 Subsidence

12 URS points out that, in the Pacific Northwest region, catastrophic tectonic subsidence is most
13 strongly associated with coseismic deformation from megathrust events. Historically, such
14 deformations have lead to the sudden inundation and death of coastal forests and marshes
15 (Atwater, 1996), and appear to be constrained to the Cascadia forearc. In contrast, seismo-
16 tectonic evaluations of the Tualatin and Northern Willamette Valleys (Unruh, et al., 1994) do not
17 reveal a propensity for coseismic tectonic subsidence. Also, should regional subsidence of the
18 Tualatin Basin occur, the pipeline will subside relatively uniformly along the alignment and not
19 develop critical differential movement that could threaten the integrity of the pipeline. From
20 this, URS concludes that there is no compelling data, to date, to suggest that sudden tectonic
21 subsidence is a significant risk in the project area.

22 Other Hazards

23
24 URS also noted that other potential earthquake-related hazards including tsunamis and/or seiches
25 do not pose a significant threat to the proposed pipeline due to the location inland and away from
26 the sources of these hazards.

27 **(2) Facility Design for Seismic Hazards**

28
29 The proposed SMPE would be embedded in the soil; thus the Uniform Building Code standards
30 do not apply. The construction standards for the SMPE are governed by the regulations of the
31 U.S. Department of Transportation at 49 CFR, Part 192 (2000). The wave propagation hazards
32 to a buried pipeline are much less than for tall surface structures. The primary risks would be
33 from the pipeline crossing a known fault, in which case the pipeline could be ruptured by fault
34 movement, or from rapid soil movement around the pipeline caused by a landslide, settlement, or
35 lateral spreading.

36
37
38 At major roads and river crossings, the SMPE would be bored beneath the surface using
39 trenchless techniques (horizontal directional drilling or pipe jacking). Accordingly, URS
40 performed site-specific studies of the soil characteristics at nine proposed road and stream
41 crossings. Soils were either drill-tested or tested with cone penetration devices to assess their
42 characteristics and the feasibility of placing the pipeline by horizontal directional drilling at these
43 locations. These specific studies are discussed at Sections 3.4.3 through 3.4.11 of Appendix H-1.

44
45 The design specifications for the pipeline provide assurance of no structural damage due to
46 design levels of ground shaking or secondary hazards associated with ground movement or
47 failure. In regards to secondary hazards, URS concludes that liquefaction mitigation is not
48 needed because the magnitude of liquefaction-induced settlement and lateral spreading is not
49 sufficient to cause dangerous levels of strain in the pipeline material. This conclusion is

1 supported by engineering calculations using state-of-practice methodologies. Similarly, URS
2 concludes that the pipeline can be built and operated safely with regards to seismic slope stability
3 hazards. The potential for slope movement is always present with varying topography.
4 However, the Preferred Corridor minimizes the steep slopes and the proposed path tends to
5 follow ridge tops or traverses vertically up the hillside versus following the line of slope. This
6 minimizes the stress on the pipe in the unlikely event of a landslide. URS also performed
7 detailed investigations and site-specific modeling for areas of higher landslide potential as
8 discussed more fully in the following section. Based on these evaluations of seismic and non-
9 seismic landslide potential, URS concludes that the pipeline can be designed, constructed, and
10 operated without danger to public health and safety.

11
12 The ASC refers to two reports that consider the performance of buried natural gas pipelines
13 during seismic events. A report by Bechtel¹ analyzed the effects of earthquakes on pipelines
14 around the world. The study notes that nearly all high-pressure natural gas transmission
15 pipelines built around the world in the last 40 years share characteristics that strengthen their
16 ability to withstand earthquakes. The Bechtel study examined six major earthquakes to determine
17 their effects on existing transmission lines. Earthquakes included in the study were the 1964
18 Alaskan earthquake; the 1971 San Fernando, California, earthquake; the northeastern Italy
19 earthquake of 1976; the Mexico City (Michoacan) earthquake of 1985; the Tennant Creek,
20 Australia earthquake of 1998; and the 1989 Loma Prieta (San Francisco Bay) earthquake.

21
22 According to this report, the only medium-pressure steel pipeline known to have been damaged
23 by the 1989 Loma Prieta earthquake was a gas pipeline near Hollister, California, installed in
24 1930. It had been welded using the oxy-acetylene gas-welding technology available at the time.
25

26 Bechtel's research uncovered only one failure of a modern gas transmission pipeline, which was
27 a result of the 1964 Alaskan earthquake. A 12-inch diameter steel gas transmission pipeline,
28 approximately 50 miles long, from Kenai to Anchorage, was undamaged along its entire length,
29 except at an 8-mile segment where dual 12-inch diameter pipelines were buried in the soft
30 marine sediments of the Cook Inlet. One of these marine crossing pipelines ruptured, apparently
31 due to shifting liquefied soils.

32
33 This report states that "the historical record supports the conclusion that modern buried steel
34 pipelines have proven to be very resistant to damage from earthquakes."
35

36 Another study led by a Cornell University engineering professor, T.D. O'Rourke,² reviewed
37 more than 61 years of earthquake performance of steel transmission pipelines operated by the
38 Southern California Gas Company. The report concluded that "[p]ost-WWII electric arc-welded
39 transmission pipelines in good repair have never experienced a break or leak during a southern
40 California earthquake."
41

¹ "The Effects of Earthquakes on Pipelines," a Bechtel report for the Trans Mountain Low Point Project.

² "Earthquake Performance of Gas Transmission Lines," T. D. O'Rourke, professor, School of Civil and Environmental Engineering, Cornell University, and M. C. Palmer, Staff Engineer, Mueser Rutledge Consulting Engineers, New York, NY.

1 During the Kobe, Japan earthquake of 1995, the sediments were strongly shaken up to 0.8g,
2 which resulted in extensive liquefaction throughout the Kobe area. During initial assessment
3 following within one month of the earthquake, no damage was reported to the 87 miles of 24-
4 inch diameter medium pressure gas lines in the area.³

5
6 Regarding danger from slope instability, URS recommends that NWN assess seismically induced
7 damage from slope movement by visual inspection of the pipeline route following any
8 earthquake that generates peak ground accelerations in excess of 0.1g along the corridor. OOE
9 recommends that this requirement be adopted as a condition.

10
11 **(3) Site Characterization – Geologic and Soils Hazards**

12 The Structural Standard also calls for analysis of geological and soils hazards that could
13 adversely affect or be aggravated by the construction or operation of the proposed pipeline "in
14 the absence of a seismic event." These "non-seismic" hazards, as detailed by URS, include
15 landslides, soils hazards including shrink/swell and organic (e.g., peat) soils, high groundwater,
16 flooding and scour, and erosion of steep slopes.

17
18 URS analyzed the geology and soils in the analysis area through review of the scientific
19 literature, aerial reconnaissance, stereoscopic aerial photo interpretation, ground reconnaissance,
20 geographic information system ("GIS") modeling, core drilling, soil penetration tests, and
21 laboratory tests. URS reviewed published information about the 82 separate soil types along the
22 Preferred Corridor and Alternate Corridor Segments and drilled and tested soils at specific
23 locations along the Preferred Corridor where horizontal directional drilling would be used to
24 place the pipeline. URS also reviewed historical flood data and used detailed topographical data
25 to analyze slope stability. Details of these techniques and the resultant regional analyses are in
26 Sections 3.2 and 3.3 of Appendix H-1. Summaries of URS' evaluation of specific non-seismic
27 hazards are as follows:

28
29 **Landslides**

30 URS performed detailed GIS analysis of slopes along the Preferred Corridor and Alternate
31 Corridor Segments to determine the likelihood of slope failure by landslide. Landslides were
32 identified by aerial photo interpretation, aerial reconnaissance using a helicopter, and site visits.
33 Dormant and active landslides were mapped and site visits and detailed studies were performed
34 in the Dairy Creek Reach. Active and dormant landslides are shown on a geologic hazard map at
35 Figure 3.1 of Appendix H-1. Detailed topographic information at 10-foot contour intervals was
36 used to evaluate slope steepness in the area. No landslides or slope hazards were identified
37 outside the Dairy Creek Reach.

38
39 URS concluded that the central alternative corridor, the Dairy Creek Valley Corridor, is least
40 exposed to steep slopes and avoids active or dormant landslides. URS also concluded that the
41 pipeline can be designed, constructed, and operated through the Dairy Creek Valley Corridor in a
42 manner that will avoid dangers to human safety related to seismic and nonseismic geologic
43 hazards. Accordingly, the Preferred Corridor includes the Dairy Creek Valley Corridor.

44
45 Fieldwork was focused on active landslides at Sherman Mill and Red Slide Hill. A sample
46 borehole was made above the Sherman Mill slide. Attachment C of Appendix H-1 presents the

³ "Site Specific Geological and Soil Stability Assessment, Summit/Westward Energy Project", Squier and Associates May 2001

1 detailed study of the Sherman Mill slide.⁴ URS concludes that the Dairy Creek Valley Corridor,
2 which passes closest to that landslide, would have an adequate safety factor. Construction and
3 operation of the pipeline would not result in danger to human safety.
4

5 URS also focused investigations in the Parrett Mountain Area. A memorandum titled “Review
6 of Slopes in the Parrett Mountain Area,” dated April 9, 2001 relates to project-specific studies
7 conducted by URS to assess slope stability in this area. URS’ review of aerial stereo
8 photographs in this area confirms there is no evidence of past or current slope instability along or
9 near alignment option 4b where it crosses the west fork of Chicken Creek. Based on URS’ site-
10 specific field reconnaissance and aerial photo interpretation of the pipeline corridor in the
11 Sherwood area, coupled with a review of documented landslide activity in the region, URS
12 concludes that the preferred alignment is safe with regard to landslide activity.
13

14 Soils Hazards

15 The primary soils hazards identified along the Preferred Corridor were organic soils (peat)
16 subject to settlement and soils that shrink and swell with varying water content. Structural
17 damage from shrink/swell or organic soils can occur when foundation conditions vary greatly
18 from one point in the structure to another. For example, a soil-supported pipeline that enters a
19 pile-supported building might be prone to shrink/swell damage unless a flexible coupling is
20 provided at the pipeline entrance to the building. The building would act as a “hard point” that
21 would prevent the pipeline from freely moving up and down with the soil, and the flexible
22 coupling would be needed to accommodate that differential movement. However, the pipeline
23 support conditions along the corridor do not change abruptly as they would for the previous
24 example. Calculations and historical observations indicate that the differential movements
25 induced by liquefaction induced lateral spread or settlement would be greater than those due to
26 shrink/swell or compressible soils. As such, the conservative analyses to evaluate liquefaction
27 permanent ground deformation would bracket the anticipated response of the pipeline to shrink-
28 swell soils. Therefore, URS concludes that the pipeline would safely accommodate modest
29 shrink/swell offsets that may occur along the alignment. This conclusion is supported by the
30 observation that miles of pipelines and roadways are currently in service in the study area with
31 no apparent distress from shrink-swell soils.
32

33 Groundwater

34 High groundwater can cause the sides of trenches to collapse during pipeline construction.
35 While there are areas along the Preferred Corridor that have high groundwater tables during wet
36 seasons, URS concluded that by using appropriate construction techniques and favoring dry
37 weather, the pipeline can be constructed and operated without danger to human safety.
38

39 Flooding and Scour

40 URS analyzed maps of floodplains and historical flood information along the Preferred Corridor
41 and Alternate Corridor Segments. In the areas most subject to flooding and scour by
42 floodwaters, NWN plans to place the pipeline at least 5 feet below the scour zones. At major
43 river crossings such as the Willamette, the pipeline will be directionally drilled to a greater

⁴ Under Amendment 2 to the South Mist Feeder Pipeline Site Certificate, approved in 1999, NWN installed strain gauges in the Sherman Mill slide area and “reads” them periodically. NWN used indications from those gauges in studying the corridor for this proposed pipeline. Since the gauges are already installed, no condition requiring further instrumentation in this area is recommended. See NWN March 18, 2002 letter from Ron Gullberg to Adam Bless.

1 depth. By implementing these design criteria, URS concludes that the pipeline can be built and
2 operated without danger to human safety resulting from flooding and scour.

3 4 Erosion

5 Erosion is the removal of surface soils either by wind or surface water action. Prolonged erosion
6 can result in reduced agricultural production, buildup of silts in surface water, and nuisance dust.
7 URS considered locations along the Preferred Corridor and Alternate Corridor Segments where
8 erosion of steep slopes might affect the proposed pipeline. URS concluded that with proper
9 construction techniques, the pipeline can be built and operated without danger to human safety
10 relating to erosion of steep slopes. Erosion control procedures both during and after construction
11 are detailed in Exhibit I of the Application.

12
13 In addition, NWN's July 2001 response to OOE's Request for Additional Information, Figure
14 3.1.1, included a set of composite GIS hazard maps for the corridor. The coverage consists of 14
15 sheets that depict locations of potential geologic hazards, existing geotechnical exploration sites,
16 planned geotechnical exploration sites, and planned trenchless installation sites. These maps can
17 serve as a useful framework for indexing geologic conditions and design requirements.

18 19 **(4) Facility Design for Geologic and Soils Hazards**

20 In Section 6.1 of Appendix H-1, URS describes generally those design and construction
21 techniques that would mitigate any hazards from non-seismic sources. The recommendations
22 include but are limited to: lightweight backfill in peat deposits; use of water breaks to prevent
23 backfill erosion; pipeline placement below the depth of scour in fluvial zones; use of the erosion
24 control measures described in the "Erosion and Sediment Control Plan" submitted with Exhibit
25 K; visual monitoring in known landslide areas; installation of instruments if pending slope
26 instability is noted; and placement of the pipeline with the greatest possible setback from the
27 slope above the Sherman Mill slide area. URS concludes that, by following these guidelines and
28 utilizing proper construction techniques, the pipeline can be constructed and operated without
29 danger to human safety from the nonseismic hazards reviewed. OOE recommends that these
30 steps be adopted as conditions.

31
32 NWN and their consultants performed a detailed and thorough geotechnical assessment of the
33 proposed pipeline. After analyzing all seismic and nonseismic geologic hazards, URS concludes
34 that through utilization of proper design and construction techniques, the proposed pipeline can
35 be constructed and operated in these areas in a manner that will avoid dangers to human safety.
36 The Office consulted with the Oregon Department of Geology and Mineral Industries
37 (DOGAMI) for review of this portion of the Application. DOGAMI considers the
38 methodologies used by the applicant to be appropriate and complete. DOGAMI recommends,
39 and OOE concurs, that the Council find that the SMPE meets the Structural Standard and add
40 one overarching condition that the findings and recommendations put forth by URS be followed
41 in the design, construction, and operation of the pipeline. DOGAMI noted that, in design,
42 particular consideration should be paid to longer-period, longer-duration ground motion inputs
43 resulting from the Cascadia subduction zone scenario. Particular attention should also be paid to
44 fully incorporating the specific conditions set forth by URS in Section 6.1: Hazard Mitigation.
45 DOGAMI further recommends that construction observation by a qualified geo-professional be
46 required to ensure that the recommendations are implemented properly and that any unforeseen
47 field conditions are reported back to URS. If changes are encountered in the field, NWN, URS
48 and/or any designers of the pipeline should be notified so that plans can be modified to ensure
49 safe installation and operation of the pipeline.

1
2 **Conclusion**

3 OOE recommends that the Council find NWN has adequately characterized the site in terms of
4 seismic zone and expected ground response during plausible scenarios and can design and
5 construct the facility to avoid potential dangers presented by natural hazards affecting the site,
6 with conditions relevant to this standard listed at section VI of this order.
7

8 **3. OAR 345-22-022 Soil Protection**

9 Under this standard the Council must find that the construction and operation of the facility,
10 taking into account mitigation, is not likely to result in a significant adverse impact to soils.
11

12 **Discussion**

13 The Preferred Corridor encompasses a total of approximately 1,455 acres. The actual impacts to
14 soils will be significantly less than 1,455 acres because the temporary construction easement will
15 be no more than 80 feet wide and the permanent easement will be 40 feet wide. Land devoted to
16 agriculture and forestry occupies approximately 66 percent of the total area of the Preferred
17 Corridor. Other land uses include industrial, commercial, residential, roadways, waterways, and
18 riparian areas. Most of the land in the analysis area is zoned for forestry or exclusive farm use.
19

20 Agricultural crops were produced on approximately 843 acres, or 58 percent, of the Preferred
21 Corridor in the 2000 crop year (ASC, Table I-5). Forty-four different farm crops were identified
22 within the Preferred Corridor. The top five farm crops in the Preferred Corridor in terms of
23 acreage were grass seed, pasture, sweet corn, nursery products, and wheat. These five crops
24 represent more than 61 percent of the total agricultural acreage within the Preferred Corridor.
25 Livestock was produced on 107 parcels within the Preferred Corridor. Most livestock operations
26 raise cattle, sheep, or horses.
27

28 After construction, agricultural production may resume on the pipeline right of way, subject to
29 restrictions on certain crops with deep root systems that could impact the pipeline.

30 Timber was produced on approximately 122 acres, or 8.4 percent, of the Preferred Corridor in
31 the year 2000 (ASC, Table I-5). After construction, timber production may resume outside the
32 permanent easement. Timber and other upland forest trees will not be replanted on the
33 permanent easement, and the permanent easement may be cleared of these trees during regular
34 maintenance activities. However, NWN must ensure that soil productivity is maintained even
35 where crop restrictions exist.
36

37 Potential Adverse Impacts

38 The impact of the facility on soils is primarily due to construction activities. Construction
39 activities that may result in impacts to soils include:

- 40 • Clearing and grubbing of vegetation;
41 • Construction of temporary access roads;
42 • Pipe installation and the excavation, stockpiling, and backfilling of soil;
43 • Slick boring and directional drilling activities;
44 • Stringing and assembly of pipe; and
45 • Heavy equipment operation in association with the above activities.
46

47 Some activities will occur along the entire length of the construction easement, while other
48 activities, such as slick boring and directional drilling, will occur only at specific points. The
49 construction easement will generally be 80 feet wide. The width of the construction easement

1 may vary, however, depending on local conditions and specific area requirements for individual
2 activities.

3
4 Construction activities may result in a variety of potential impacts to soils. The magnitude of the
5 impacts may be compounded by the topography of the construction area and certain other soil
6 characteristics. Impacts that may result in erosion and sediment runoff, for example, may be
7 compounded by increased slope. Specific impacts that may result from construction activities
8 are described separately below.

9
10 1. Clearing and Grubbing of Vegetation

11 Vegetation removal will be required within the construction easement and may be required at
12 directional drilling and slick-boring sites, pipe laydown and assembly areas, and temporary
13 roadways. Vegetation removal will include logging activities, removal of stumps and large root
14 systems, brush mowing, mowing herbaceous vegetation and standing crops, and the operation of
15 heavy equipment. Impacts associated with these activities may include:

- 16 • Soil compaction due to the operation of heavy equipment;
- 17 • Increased storm water runoff, erosion, and sediment transport due to soil compaction;
- 18 • Soil disturbance from removal of root systems and removal of vegetation cover; and
- 19 • Mixing of topsoil and subsoil.

20
21 2. Construction of Temporary Access Roads

22 Construction of temporary access roads may be required to facilitate operation of construction
23 equipment, delivery of construction materials, and removal of construction wastes. Clearing of
24 vegetation, land grading, and placement of a road base may be necessary. Access roads may
25 extend beyond the boundaries of the Preferred Corridor. Road construction activities may result
26 in the following impacts:

- 27 • The impacts associated with clearing and grubbing of vegetation;
- 28 • Soil compaction due to the operation of equipment over roads and placement of road
29 base, such as gravel, where necessary;
- 30 • Mixing of topsoil and subsoil during grading activities; and
- 31 • Increased storm water runoff from impervious road base.

32
33 In a March 18, 2002 letter from Ron Gullberg, NWN, to Adam Bless, OOE, NWN stated:

34 *“***NWN intends to use existing public roads, farm roads or private driveways (with*
35 *permission) to access the construction zone right of way and then travel along the*
36 *construction zone right of way to access HDD bores. It is unlikely that new access road*
37 *would be built that is outside the corridor and on farmland.”*

38
39 OOE recommends that this statement be considered a commitment by NWN, and added as a site
40 certificate condition.

41
42 Regarding placement of gravel, NWN stated in the March 18 letter that:

43 *“***where rock or gravel is temporarily placed on agricultural land, an underlayment of*
44 *durable geotextile matting will be placed over the soil surface prior to the installation of rock*
45 *material. The geotextile matting will be sufficiently strong to prevent rock from becoming*
46 *embedded in the soil and to withstand removal of rock without tearing. Rock and geotextile*
47 *matting will be completely removed during clean up and restoration. Compacted*
48 *agricultural land soils will be decompacted utilizing deep tillage.”*

1 These measures are listed in the “Agricultural Impact Mitigation Plan”, which NWN submitted
2 as part of the ASC in October 2001.

3 4 3. Grading

5 Grading of the ground surface in the construction area may be necessary to facilitate operation of
6 construction equipment on slopes or where the ground surface is irregular. Vegetation clearing
7 and temporary road construction may be required as part of grading activities. Impacts from
8 grading activities may include the following:

- 9 • Increased storm water runoff, erosion, and sediment transport from exposed soils and soil
10 stockpiles;
- 11 • Soil compaction due to the operation of heavy equipment; and
- 12 • Mixing of topsoil and subsoil.

13 14 4. Pipe Installation and the Excavation, Stockpiling, and Backfilling of Soil

15 The pipeline will typically be installed in an excavated trench. This method will generally
16 involve the excavation of a four-foot-wide trench to a depth that allows placement of at least five
17 feet of cover over the pipe. Blasting may be necessary in areas of shallow bedrock, although the
18 amount of blasting is anticipated to be minimal. Where space allows, excavated soils will
19 typically be stockpiled to one side of the trench to provide a work area on the opposite side of the
20 trench. Following installation of the pipe, the trench will be backfilled. Backfill material will be
21 compacted to Project specifications to minimize soil settlement after construction is complete.
22 Vegetation clearing, temporary road construction, and grading may be required as part of these
23 activities. Impacts from pipe installation and the excavation, stockpiling, and backfilling of soil
24 may include the following:

- 25 • Soil compaction due to the operation of heavy equipment adjacent to the trench;
- 26 • Increased storm water runoff, erosion, and sediment transport due to soil compaction and
27 the presence of exposed soils and soil stockpiles;
- 28 • Mixing of topsoil and subsoil during excavation and stockpiling of soils;
- 29 • Mixing of rock into topsoil during trench excavation and blasting; and
- 30 • Damage to drainage tiles, irrigation lines, and other subsurface features in agricultural
31 lands.

32
33 In its March 18, 2002 letter, NWN stated its intention to restore trench backfill/compaction levels
34 to as close as possible to original conditions. The October 2001 Agricultural Impact Mitigation
35 Plan includes more detailed measures to ensure this result.

36 37 5. Slick Boring and Directional Drilling Activities

38 At several locations, the pipeline will be installed using slick boring and directional drilling
39 methods to avoid impacts to rivers, streams, wetlands, and highways. Both methods require
40 additional work areas for operation of drilling equipment and associated support vehicles,
41 staging of pipe, and transport and disposal of drill cuttings. The directional drilling method
42 requires a pipe assembly area long enough to assemble the entire segment of pipe before the
43 assembled pipe is pulled through the drilled hole. Staging and pipe assembly areas for
44 directional drilling may extend beyond the boundaries of the 200-foot-wide Preferred Corridor
45 and one Alternate Corridor segment. Slick-boring activities will require additional work space
46 for the excavation of a drilling pit, which may require blasting in areas of shallow bedrock. The
47 need for blasting is anticipated to be minimal. Vegetation clearing, temporary road construction,
48 and grading may be required as part of these activities. Boring and drilling activities may result
49 in the following impacts to soils:

- Soil compaction due to the operation of equipment in staging and pipe assembly areas and adjacent to drill sites;
- Increased storm water runoff, erosion, and sediment transport due to soil compaction and presence of exposed soils and soil stockpiles;
- Mixing of subsoil and topsoil where bore pits are excavated;
- Mixing of rock into topsoil during excavation of bore pits and blasting; and
- Damage to drainage tiles, irrigation lines, and other subsurface features in agricultural lands.

6. Stringing and Assembly of Pipe

Activities associated with the stringing (delivery of pipe from a local pipe storage area to the construction site) and assembly of the pipe will occur along the entire construction easement and within the pipe laydown and assembly areas at drill sites. Temporary road construction, clearing and grubbing of vegetation, and grading may be necessary before stringing and pipe assembly.

Impacts associated with the stringing and assembly of the pipe may include:

- Soil compaction due to the operation of stringing trucks and heavy equipment;
- Increased storm water runoff, erosion, and sediment transport due to soil compaction and presence of exposed soils; and
- Mixing of topsoil and subsoil from rutting by heavy equipment and stringing trucks.

7. Summary of Potential Impacts

The potential construction-related impacts described above are summarized as follows:

- Increased erosion and sediment runoff;
- Mixing of topsoil and subsoil;
- Introduction of rock into topsoil;
- Soil compaction; and
- Damage to subsurface systems such as drainage tiles and irrigation lines in agricultural areas.

Each such impact has the potential to decrease, temporarily or permanently, the productivity of the affected soils in farm zones. Erosion would remove productive topsoil. Mixing of rock into the topsoil and mixing of topsoil with subsoil would reduce the productivity of agricultural soils. Excessive compaction of agricultural soils would reduce soil productivity by reducing water infiltration, root development, and oxygen diffusion in soils. Damage to drainage tiles may result in excessively wet soils that are difficult to farm and that have reduced productivity compared to better-drained soils.

Additional erosion and sediment control measures are described in more detail in the Erosion and Sediment Control Plan prepared as part of the application for a DEQ Construction Stormwater Permit (Permit 1200-C). NWN provided that plan as Appendix K-10 to the ASC and OOE has recommended that the implementation of that plan be required as a condition under the Council's Land Use standard. Moreover, substantial compliance with the Erosion and Sediment Control Plan is assured because the site certificate will be conditioned to require that NWN obtain and comply with the DEQ 1200-C permit.

Soil Limitations

Certain physical and chemical characteristics of a soil may increase the magnitude of construction-related impacts. A soil characteristic that could result in a greater potential impact

1 to the soil or could impede the restoration of construction areas is considered a soil limitation.
2 Soil characteristics that are used to define soil limitations include slope, runoff potential, water
3 erosion hazard, soil texture, subsurface stones, depth to bedrock, soil pH, soil drainage, and
4 wetness.
5

6 Soils within the Preferred Corridor and the Alternate Corridor Segments were evaluated to
7 identify soil limitations that could affect construction or increase the potential for soil impacts.
8 Soil limitations were identified using data provided in the county soil survey reports (USDA,
9 July 1982, September 1972, and November 1985). The soil limitations identified for this Project
10 and the specific criteria used to define each limitation are as follows:

- 11 • Water Erosion Hazard is largely a function of slope and is designated as slight, moderate,
12 or severe. The designations are assigned in the county soil survey reports;
- 13 • Compaction is a function of moisture content, soil texture, and the amount of traffic on
14 the soil. Soils prone to excessive compaction are identified as soils with a surface texture
15 of silty clay loam, clay loam, or sandy clay loam or finer and a drainage designation of
16 somewhat poorly drained to very poorly drained;
- 17 • Shallow-to-Bedrock soils are identified as soils with bedrock within 60 inches of the
18 surface;
- 19 • Stony or Rocky Subsoil is considered a limitation for soils with more than 5 percent rock
20 fragments larger than three inches that occur within the subsoil horizons;
- 21 • Hydric soils are saturated, flooded, or ponded long enough during the growing season to
22 develop anaerobic conditions in the upper part of the soil; the NRCS provides a list of
23 hydric soils for each county;
- 24 • Excessively Droughty soils are identified as soils with a gravelly or stony surface layer or
25 a surface texture of sandy clay, sandy clay loam, or sandy loam or coarser and are
26 well-drained to excessively drained; and
- 27 • Excessively Low Soil pH is designated for soils with a surface horizon pH of less than
28 5.1.
29

30 The acreage of each identified soil limitation for each soil series within the Preferred Corridor is
31 presented in the ASC in Tables I-2 and I-4 and for the Alternate Corridor Segments in Table I-3.
32 OOE recommends a condition requiring that, prior to construction, NWN provide specific
33 measures to tailor the soil mitigation to the specific soil type.
34

35 Specific Impacts and Mitigation

36 As described above, pipeline construction activities have the potential to adversely affect soils.
37 Potential soil impacts include loss of soil due to erosion, mixing of topsoil and subsoil, bringing
38 excess rock to the surface, soil compaction from heavy equipment, and disruption of surface or
39 subsurface drainage systems or irrigation systems.
40

41 **A. Soil Erosion**

42 1. Impact

43 The erosion potential for a soil is dependent on several characteristics, including soil texture and
44 structure, topography, surface roughness, vegetative cover, and climate. Erosion from water
45 occurs primarily on loose soils on moderate to steep slopes, particularly on long slopes during
46 high-intensity storm events. Soil erosion is influenced by the length of time the soil surface is
47 bare, by changes in drainage patterns, and by the utilization of erosion control measures.
48 Pipeline construction will disturb existing vegetation and expose bare soil, increasing the
49 potential for erosion.

1
2 The majority of the construction easement areas will cross nearly level to gently sloping terrain
3 that is not considered highly erodible by water. Approximately 85 percent of the acreage in the
4 Preferred Corridor has a slope of less than 8 percent and a slight erosion hazard. Approximately
5 10 percent of the acreage in the Preferred Corridor has a moderate erosion hazard, and
6 approximately 5 percent of the acreage has a severe erosion hazard.

7
8 The average annual precipitation in the analysis area is approximately 42 inches. Approximately
9 70 percent of the annual precipitation occurs during the wettest five-month period of November
10 through March.

11
12 Wind erosion is not considered to be a significant problem for soils in the analysis area. The soil
13 survey reports do not identify a wind erosion hazard for the soils in the three-county area
14 (USDA, July 1982, September 1972, and November 1985).

15
16 The revegetation potential in uncultivated areas within the construction easements can be limited
17 by soils that are excessively droughty or excessively acidic (low soil pH). Less than 0.01 percent
18 of the acreage in the Preferred Corridor is considered excessively droughty (Tables I-2 and I-4).
19 Less than 5 percent of the acreage in the Preferred Corridor is occupied by soils with an
20 excessively low soil pH (Tables I-1, I-2, and I-4) that could limit revegetation with adapted
21 perennial grasses.

22 23 2. Mitigation

24 The use of erosion control measures and timely revegetation can reduce the impact of pipeline
25 construction on soils. As feasible, most construction activities will be scheduled to occur during
26 the drier months of April through October. However, some construction activities, including, but
27 not limited to, drilling or boring to cross under water bodies or roads, may be scheduled for other
28 times of the year.

29 30 a. Temporary Erosion Control

31 Temporary erosion and sediment control measures will be installed and maintained throughout
32 construction and restoration, as necessary, until replaced by permanent erosion control measures.
33 Temporary slope breakers will be installed to reduce runoff velocity and divert water from the
34 construction area and may be constructed of soil, silt fence, straw bales, sandbags, or other
35 appropriate materials. Temporary slope breakers will be installed, as feasible, on slopes from 2
36 to 5 percent at a spacing of 300 feet, on slopes from 5 to 10 percent at a spacing of 200 feet, and
37 on slopes steeper than 10 percent at a spacing of 100 feet. The outfall of temporary slope
38 breakers will be directed to a stable, well-vegetated area or to a constructed, energy-dissipating
39 device.

40
41 Sediment barriers will be installed to interrupt the flow of sediment. Materials used to construct
42 sediment barriers may include silt fence, straw bales, and biofilter bags. Sediment barriers will
43 be installed at appropriate locations to prevent the movement of sediment onto roadways and into
44 water bodies or wetlands crossed by the construction easement or near the construction area.
45 Sediment barriers will be maintained until revegetation is successful or until the upland areas
46 adjacent to roadways, wetlands, or water bodies are stabilized.

1 Discharge from trench dewatering will be directed into an energy-dissipating device to prevent
2 soil scouring. NWN will make reasonable efforts to discharge trench water in a manner that will
3 avoid damaging adjacent agricultural land, crops, or drainage systems.
4

5 Temporary mulch will be applied in the event of a seasonal shutdown, if construction or
6 restoration activity is interrupted or delayed for an extended period, or if permanent seeding of
7 non-cropland areas is not completed during the recommended seeding period before the winter
8 season. Temporary straw mulch will be applied to bare soil surfaces, including topsoil piles, at
9 the rate of 4,000 pounds per acre. Interim seeding of a cover crop may be used in lieu of
10 temporary mulching in some areas. Straw mulch will not be applied in cultivated areas where
11 the landowner or farm operator has submitted objections in writing to NWN.
12

13 In cultivated land where the landowner or farm operator will not replant the construction
14 easement before the first winter season, NWN will plant a temporary cover crop or will apply
15 mulch following restoration of the easement area. The cover crop may be an annual grain, other
16 annual grass, or annual legume. A temporary cover crop will not be planted and mulch will not
17 be installed in cultivated areas where the landowner or farm operator has submitted objections in
18 writing to NWN.
19

20 b. Permanent Erosion Control

21 Permanent erosion control measures will be installed during construction, cleanup, and
22 restoration and will be left in place.
23

24 Trench breakers will be installed in the trench before backfilling in certain areas to restrict or
25 slow the flow of subsurface water along the trench line. An engineer or similarly qualified
26 professional will determine the need for and the spacing of trench breakers.
27

28 Permanent slope breakers are intended to reduce runoff velocity and divert water off the surface
29 of the construction area. Permanent slope breakers will be constructed of soil, sandbags, or other
30 suitable materials. Permanent slope breakers will be installed, at a minimum and as feasible, on
31 slopes from 5 to 15 percent at a spacing of 300 feet, on slopes greater than 15 percent to
32 30 percent at a spacing of 200 feet, and on slopes greater than 30 percent at a spacing of 100 feet.
33 The outfall of slope breakers will be directed to a stable, well-vegetated area or to a constructed,
34 energy-dissipating device. Permanent slope breakers will generally not be installed in public
35 rights-of-way, cultivated lands, or residential areas.
36

37 Straw mulch or a functional equivalent will be applied in certain areas to stabilize the soil surface
38 until vegetation is established. NWN will make reasonable efforts to obtain straw for mulch that
39 is free of noxious weeds.⁵ Straw mulch will be anchored to the soil by mechanical crimping,
40 liquid tackifier, erosion control netting, or by other suitable means. Liquid tackifiers, where
41 used, will be vegetable-based, organic products such as guar gum or plantago. Following the
42 restoration and seeding of uncultivated construction areas, straw mulch will be applied at 4,000
43 pounds per acre, or a functional equivalent will be installed. Mulch will not be applied within
44 wetland boundaries. Liquid tackifiers will not be used within 100 feet of wetlands or water
45 bodies.
46

⁵ As the term “noxious weeds” is defined in ODA rules at OAR 603-052-1200

1 Erosion control matting will be installed following seeding on certain slopes where mulch will
2 not provide effective erosion control or where mulch application and anchoring are not feasible.
3 Typical erosion control matting applications may include slopes steeper than 40 or 50 percent
4 and the banks of certain water bodies. Erosion control matting will not be installed in cultivated
5 areas.

6
7 NWN proposes revegetation of non-cultivated areas as the primary means of permanent erosion
8 control. Following final grading and cleanup, NWN will prepare the construction area for
9 seeding. NWN will seed areas to be revegetated with seed mixes, seeding rates, seeding dates,
10 and soil amendments developed in consultation with the NRCS, Oregon Department of Fish &
11 Wildlife, Oregon Department of Transportation, Oregon State University Extension Service, or
12 others. NWN will honor reasonable landowner requests for alternate seed mixes in upland areas.
13 Areas to be revegetated will be seeded during the first recommended seeding season following
14 the completion of construction, weather and soil conditions permitting. Cultivated cropland will
15 generally be reseeded or replanted by the landowner or farm operator.

16 17 **B. Topsoil Protection**

18 1. Impact

19 The mixing of soil horizons during grading, excavations, trenching, and backfilling could lower
20 the soil productivity by mixing topsoil with less productive subsoil. Approximately 76 percent
21 of the acreage in the Preferred Corridor is occupied by soils classified by the NRCS as prime
22 farmland (Tables I-1, I-2, and I-4).

23 24 2. Mitigation

25 During construction, NWN will strip and segregate topsoil from over the trench and from the
26 trench spoil storage area in agricultural lands. Agricultural lands include annually cultivated or
27 rotated cropland; land in perennial field crops, orchards, or vineyards; land used for small fruit,
28 nursery crops, greenhouses, or Christmas trees; improved pasture; hayfields; land in the
29 Conservation Reserve Program; and previously cultivated land in government-sponsored
30 environmental or conservation programs, not including land converted to wetlands. Other
31 topsoil segregation procedures may be utilized at the landowner's request.

32
33 Where topsoil depth is greater than 12 inches in agricultural land, NWN will strip and segregate
34 at least 12 inches of topsoil. Where topsoil depth is less than 12 inches in agricultural land, the
35 entire topsoil layer will be stripped to a depth where the topsoil color changes to the color of the
36 underlying soil horizon or to where an otherwise distinct underlying soil horizon is encountered.

37
38 On agricultural land, in the portions of the construction easement where grading or cut and fill
39 will occur or where excavations are made beyond the typical trench width, NWN will strip and
40 segregate the topsoil layer up to 18 inches deep. To the extent practicable, the topsoil will be
41 stockpiled on the upslope edge of the construction area.

42
43 Topsoil will generally not be stripped and segregated on public right-of-way areas, except for the
44 portions utilized for agriculture. Topsoil will generally not be stripped and segregated where the
45 majority of the surface material is rock or from areas of severe slope where no significant topsoil
46 development has occurred.

47
48 During construction in areas where the topsoil is segregated, the stripped topsoil will be stored
49 separately to reduce further disturbance to the stripped topsoil. The stripped topsoil will not be

1 allowed to mix with trench spoil, cut-and-fill materials, rock, construction debris, excavated
2 materials, or other subsoil. In areas where topsoil is segregated, subsoil will not be stored on
3 topsoil, and topsoil will not be used to pad the pipe, for constructing trench breakers or for any
4 other purpose that would result in the loss or degradation of the stripped topsoil.

5
6 Topsoil will be stored in a manner that minimizes an increase in water content by leaving gaps in
7 topsoil piles where surface drainage and ditches occur. Gaps will be left in topsoil piles where
8 livestock and farm machinery crossings are located.

9
10 NWN has committed to restricting the operation of vehicles and heavy equipment on excessively
11 wet soils on the portion of the construction work area in agricultural land where the topsoil is not
12 stripped, so that deep rutting does not result in the mixing of topsoil and subsoil.

13
14 Following backfilling, grading, and subsoil decompaction, stripped topsoil will be returned to its
15 original position. Original soil contours will be restored, with allowance for settling as
16 necessary. Trench crowns will be constructed where NWN determines that trench crowning is
17 necessary to allow for trench settlement.

18 **C. Soil Compaction**

19 **1. Impact**

20
21 Soil compaction could result from the movement of heavy construction equipment over
22 construction areas. The potential for soil compaction depends primarily on soil moisture and soil
23 texture. The potential for soil compaction would be the greatest where heavy equipment
24 operates on wet soils with high clay content. Soil compaction results in a loss of soil structure
25 and pore space, thereby restricting water penetration, root development, and the rate of oxygen
26 diffusion in soils. Soil compaction can reduce the yield of most agricultural crops. Most soils in
27 the analysis area are subject to some degree of compaction under wet soil conditions.
28 Approximately 11 percent of the acreage in the Preferred Corridor is occupied by soils
29 considered to be prone to excessive soil compaction (ASC, Tables I-2 and I-4).

30 **2. Mitigation**

31
32 Where topsoil is stripped in agricultural lands, NWN will relieve compaction of the exposed
33 subsoil before topsoil replacement. Subsoil compaction will be relieved utilizing an agricultural
34 subsoiler. After decompaction and topsoil replacement, a disc or harrow will be utilized, as
35 necessary, to smooth the subsoil surface.

36
37 Following final grading and topsoil replacement in agricultural lands, NWN will conduct deep
38 tillage to relieve soil compaction in construction areas or will test soils for compaction at regular
39 intervals. Where soil compaction is tested, construction areas will be compared to adjacent areas
40 not disturbed by construction utilizing U.S. Army Corps of Engineers-style cone penetrometers
41 or other appropriate devices or methods.

42
43 Compacted agricultural lands will be treated utilizing a non-inversion, deep-tillage agricultural
44 subsoiler specifically designed for soil decompaction and designed to minimize surface
45 disturbance to minimize significant mixing of subsoil with topsoil. Weather and soil conditions
46 permitting, NWN will conduct soil decompaction when soil moisture levels allow for effective
47 soil shattering. Decompaction equipment will not be operated on soils that are too wet, such that
48 a greater level of soil compaction might result. NWN will make multiple passes of

1 decompaction equipment as necessary. NWN will restore rutted areas and leave the soil in the
2 proper surface condition for planting.

3 4 **D. Drain Tiles**

5 1. Impact

6 In the three-county region that encompasses the analysis area, soil drainage in agricultural land is
7 often improved by installing subsurface drain tile systems. Drain tile crossed by pipeline
8 construction may be cut during trenching or may be damaged by heavy equipment. Disruption
9 of subsurface drainage systems could result in temporary crop loss in fields adjacent to the
10 construction area. Insufficient pipeline depth could interfere with the placement of subsurface
11 drain tile lines in the future.

12
13 Approximately 15 percent of the acreage in the Preferred Corridor is occupied by hydric soils
14 (ASC, Tables I-2 and I-4). Several other soils in the corridor have a seasonally high water table
15 but are not classified as hydric (ASC, Table I-1). NWN contacted landowners to determine the
16 general locations of drain tile systems. Within the Preferred Corridor, 142 parcels were
17 identified with drain tiles (ASC, Table I-5).

18 19 2. Mitigation

20 NWN will repair damaged drain tiles and will use qualified specialists for testing and repairs.
21 NWN will contact affected landowners to locate drain tile lines before pipeline installation.
22 Identified tile lines will be flagged before construction to alert construction crews. During
23 construction, any tile line that is damaged, cut, or removed will be distinctly marked. The
24 marker will be maintained until the tile has been permanently repaired.

25
26 If water is flowing through a damaged tile line, the tile line will be immediately and temporarily
27 repaired until permanent repairs are made. The exposed opening of cut or damaged tile lines
28 where water is not flowing will be covered with filter material to prevent the entry of soil or
29 other foreign material.

30
31 Permanent tile line repairs will be made within 30 days following the completion of construction
32 on any affected landowner's property, weather and soil conditions permitting. Where available,
33 local tile contractors will be employed to make permanent repairs of affected tile lines. Before
34 completing permanent repairs, tile lines will be examined by suitable means on both sides of the
35 trench for the entire length within the work area to check for tile that may have been damaged by
36 construction equipment. Tile line repairs will be made with materials of the same or better
37 quality as the tile lines that were damaged. There will be a minimum of 12 inches clearance
38 between the tile line and the pipeline. If this clearance cannot be obtained, the tile line will be
39 protected from damage that might result from the proximity of the pipeline.

40
41 Where an adjacent pipeline exists, NWN will install the new pipeline in agricultural areas with at
42 least the same depth of cover as the existing, adjacent pipeline.

43 44 **E. Stony/Rocky Soils and Shallow-To-Bedrock Soils**

45 1. Impact

46 Grading, excavation, trenching, and backfilling can bring stones to the surface. Ripping or
47 blasting of shallow bedrock can introduce rock fragments into the surface layer of the soil. The
48 introduction of rock into the topsoil can reduce soil productivity and damage agricultural
49 equipment.

1
2 2. Mitigation

3 The introduction of subsoil stones into the topsoil in agricultural lands will be minimized,
4 because NWN will segregate topsoil from the trench spoil. NWN will replace the segregated
5 topsoil in agricultural lands after the pipeline is installed and the trench spoil is backfilled.

6
7 Blasting in agricultural lands is anticipated to be minimal. In agricultural areas over shallow
8 bedrock that require blasting, matting or controlled blasting will be used to limit the dispersion of
9 blast rock fragments. Suitable precautions will be taken to minimize the potential for oversized
10 rock from blasting and other trenching activities to become interspersed with soil that is placed
11 back in the trench in agricultural areas and to prevent the introduction of rock into the topsoil.
12 In its March 18, 2002 letter, NWN noted that the primary such precaution is the segregation of
13 topsoil from over the trench and from the trench spoil area. Excess rock, including blast rock,
14 may be used to backfill the trench above the level of the pipe padding material up to the top of
15 the existing bedrock profile.

16
17 In agricultural land, the top 60 inches or the actual depth of topcover, whichever is less, within
18 the pipeline trench, bore pits, or other excavations, will not be backfilled with soil containing
19 rocks of significantly greater concentration or size than existed before the pipeline's
20 construction. OOE recommends that this be assured by a condition requiring NWN to test for
21 rock size and concentration at regular intervals prior to construction. Following backfilling and
22 decompaction in agricultural lands, excess rock larger than four inches in diameter will be
23 removed from the subsoil surface before the replacement of topsoil.

24
25 Rock in excess of the rock content before construction will be removed to the extent practicable
26 from the top 12 inches of soil in agricultural lands. In agricultural lands, NWN will make
27 diligent efforts to remove surface rocks greater than four inches in diameter from the
28 construction area if the adjacent areas do not contain rocks greater than four inches in diameter.

29
30 Following the final soil surface treatment, rocks will be removed, as necessary, so the size,
31 density and distribution of rock on the surface of the construction area will be similar to adjacent
32 areas not disturbed by construction.

33
34 The rock removal provisions may be modified by mutual written agreement between NWN and
35 the landowner. Excess rock will be removed from construction areas for disposal. Where
36 additional soil is necessary to restore the original soil contours as a result of the removal of
37 excess rock from trench backfill, imported soil will be used. NWN will make reasonable efforts
38 to obtain imported soil that is free of noxious weeds. Imported soil will be consistent in texture
39 and quality with the existing soil in the soil horizon in which it is placed on the affected site.

40
41 **F. Irrigation Systems**

42 1. Impact

43 Pipeline construction activities could disrupt or damage irrigation systems by trenching and the
44 use of heavy equipment. Crop losses may result in fields adjacent to the construction easements
45 if disruptions occur during the irrigation season. NWN has contacted landowners to determine
46 the general locations of irrigation systems. Within the Preferred Corridor, 144 parcels were
47 identified with irrigated crops (ASC, Table I-5).

48
49 2. Mitigation

1 Before construction, NWN will contact landowners and tenants to identify the location of
2 irrigation systems. Identified underground irrigation water pipes that intersect the construction
3 area will be marked to alert construction crews. NWN will maintain the flow of irrigation water
4 during construction or will coordinate a temporary shutoff with affected parties. NWN will
5 repair disrupted irrigation systems as soon as possible and will compensate affected parties for
6 crop losses that result from irrigation system interruptions due to the construction of the
7 proposed pipeline.
8

9 **G. Wet Soil Conditions**

10 1. Impact

11 The use of heavy equipment on excessively wet soils can damage the future productivity of the
12 land. Damage may include rutting that could mix topsoil with subsoil layers, damage to buried
13 drainage tile lines, and excessive soil compaction. Most analysis area soils are susceptible to
14 excessively wet conditions following heavy rainfall. Approximately 15 percent of the acreage in
15 the Preferred Corridor is occupied by hydric soils (ASC, Tables I-1, I-2, and I-4).
16

17 2. Mitigation

18 As feasible, most pipeline construction activities will be scheduled to avoid the months of
19 greatest precipitation. On excessively wet soils on agricultural land, NWN will restrict certain
20 construction activities, such as the operation of heavy equipment as feasible, or will take other
21 appropriate action so that soil productivity is preserved or so that soil productivity can be
22 restored.
23

24 **H. Noxious Weeds and Soil-Borne Plant Disease**

25 1. Impact

26 Soil and seed can adhere to construction equipment and can be moved within the construction
27 area. Noxious weed seed and soil-borne plant disease can be moved to previously uninfected
28 areas. Straw bales and straw mulch can contain the seed of noxious weeds, and the weeds can
29 become established in construction areas where the straw is used for erosion and sediment
30 control.
31

32 2. Mitigation

33 To prevent the introduction of weeds and soil-borne plant disease, NWN will require contractors
34 to thoroughly clean each unit of construction equipment with high-pressure washing before the
35 initial move of those units of construction equipment to the general construction site.
36

37 NWN will consult with the Oregon Department of Agriculture and other appropriate agencies to
38 determine the location of noxious weeds in the analysis area. NWN will take appropriate action
39 to minimize the spread of noxious weeds in cooperation with the appropriate agency.
40

41 NWN will make reasonable efforts to obtain straw bales for erosion control and straw for mulch
42 that are free of noxious and nuisance weed contamination. When available, NWN will use
43 Oregon-certified seed or equivalent for revegetation.
44

45 NWN will consult with appropriate agencies to determine if soil-borne plant diseases of
46 significance to agricultural productivity have been identified in the analysis area. NWN will take
47 appropriate action to prevent the spread or introduction of identified soil-borne plant diseases, if
48 any, in agricultural land in cooperation with the appropriate agency.
49

1 Monitoring Plan

2 NWN will monitor soil restoration, crop production, drainage, irrigation systems, and
3 revegetation for two years following the completion of initial construction area restoration.
4 During the monitoring period, NWN will identify remaining soil and agricultural impacts
5 associated with construction that require mitigation and will implement follow-up restoration or
6 appropriate mitigation measures.

7
8 **A. Drain Tiles**

9 NWN will correct drainage tile line repairs that fail due to pipeline construction, provided those
10 repairs were made by NWN. Tile line breaks or other damage to tile systems that occur on the
11 permanent or construction easements will be corrected to the extent that such breaks are the
12 result of pipeline construction. NWN will not be responsible for tile line repairs that the
13 company paid the landowner to perform at the election of the landowner.

14
15 In agricultural lands, NWN will install additional drainage tile or other drainage measures, as
16 necessary, to properly drain wet areas on the permanent and temporary easements caused by
17 construction or the existence of the pipeline.

18
19 **B. Excess Rock**

20 In agricultural land, where cultivation or soil settling results in excess surface rock compared to
21 the adjacent area not disturbed by construction, NWN will remove and dispose of the excess rock
22 from the permanent and temporary easements.

23
24 **C. Trench Settlement**

25 NWN will repair trench settlement as necessary. In agricultural lands where trench settling is
26 excessive and cannot be repaired with minor surface grading, imported topsoil will be used.
27 NWN will make reasonable efforts to obtain imported topsoil that is free of noxious weeds.
28 Imported topsoil will be consistent in texture and quality with the existing topsoil on the affected
29 site.

30
31 **D. Irrigation Systems**

32 NWN will correct problems with irrigation systems resulting from pipeline construction. NWN
33 will not be responsible for irrigation system repairs that the company paid the landowner to
34 perform at the election of the landowner.

35
36 **E. Crop Monitoring**

37 NWN will conduct on-site monitoring of growing crops at least two times during each growing
38 season during the two-year monitoring period. The growth of the crop on the construction area
39 (permanent and temporary easement) will be compared with the adjacent area not disturbed by
40 construction or to a comparable area of the field outside the construction area. NWN will make
41 visual observations of crop plant vigor, density, height, color, and uniformity. Where significant
42 visual crop deficiencies occur on the construction area compared to the adjacent or comparable
43 area not disturbed by construction, an agronomist will determine the need for additional
44 restoration measures. NWN will implement additional restoration or mitigation measures, as
45 necessary, in cooperation with affected landowners and farm operators.

46
47 **F. Revegetation**

48 NWN will monitor the success of revegetation of uncultivated areas during the first and second
49 year after construction. Uncultivated areas where seedling establishment has failed will be

1 reseeded during the next appropriate seeding period. The revegetation of the construction area
2 will be considered successful when, based on visual observation, the density or cover of well-
3 established, herbaceous, non-nuisance vegetation in the construction area is similar to the density
4 or cover of herbaceous vegetation in adjacent areas not disturbed by construction. If the
5 herbaceous vegetative cover or density in the construction area is not similar to the herbaceous
6 vegetative cover or density in adjacent areas not disturbed by construction or if there are
7 excessive noxious weeds after the first or second growing season, an agronomist will determine
8 the need for additional restoration measures. NWN will implement additional restoration or
9 mitigation measures, as necessary.

10 11 **G. Noxious Weeds**

12 The presence of noxious weeds will be evaluated in conjunction with the crop and revegetation
13 monitoring described above. NWN will take measures to control new noxious weed infestations
14 that were not identified in the construction area before or during construction. Weed control will
15 be conducted in cooperation with appropriate agencies and with landowners and farm operators.

16 17 **H. Erosion Control**

18 Permanent erosion control measures and structures will be monitored and will be maintained as
19 necessary. Temporary erosion control measures that are left in place after construction will be
20 maintained as necessary until revegetation is successful or the areas are stabilized. Additional
21 erosion control measures will be implemented as necessary where existing erosion control
22 measures do not adequately control soil erosion.

23 24 *NWN Agricultural Impact Mitigation Plan*

25 The mitigation steps described above are organized and listed in a document called the
26 “Agricultural Impact Mitigation Plan” (“AIMP”), dated October 2001. The AIMP calls for,
27 among other things, the appointment of a qualified agricultural specialist who will serve as
28 Agricultural Inspector during construction. The AIMP also calls for a pre-construction inventory
29 of each farm property, arrangements to ensure landowner access for farm equipment and stock
30 during construction, and specific steps that implement the soil protection and restoration
31 measures described above. Because the AIMP is essentially a detailed and organized list of the
32 mitigation measures described in Exhibit I of the ASC, OOE recommends that the entire plan be
33 made a condition to the site certificate.

34 35 **Conclusion**

36 NWN provided an extensive and detailed plan for mitigating soil impacts. The plan accounts for
37 the major sources of soil damage such as compaction, erosion, mixing of topsoil and subsoil,
38 introduction of rock into topsoil, and drain tile damage. The mitigation steps described in ASC
39 Exhibit I and the October 2001 AIMP are considered NWN commitments. Because Exhibit I
40 and the AIMP list NWN commitments in detail, OOE recommends that NWN be required by
41 condition to meet the representations in these two documents. OOE shall also require that the
42 results of monitoring described in the discussion above be documented in annual reports required
43 under OAR Chapter 345, Division 26. OOE recommends the Council find that the construction,
44 operation and retirement of the proposed pipeline would not result in significant adverse impact
45 on soils, with the conditions relevant to this standard listed in section VI of this Order.

46 47 **4. OAR 345-022-0030 Land Use**

48 Under this standard, the Council must determine whether the facility complies with the statewide
49 planning goals adopted by the Land Conservation and Development Commission. NWN has

1 elected to address this standard by obtaining a land use determination from the Council pursuant
2 to ORS 469.504(1)(b).

3 4 **Discussion and Conclusion**

5 Attachment A to this Order, Land Use Standard Analysis, provides the findings and conclusions
6 to demonstrate compliance with applicable substantive criteria from the Washington, Clackamas
7 and Marion County comprehensive plans, and with the comprehensive plan requirements for
8 affected cities. Attachment B to this Order provides a detailed analysis of project compliance
9 with ORS 215, which governs siting of utility facilities with the Exclusive Farm Use zone. The
10 Office recommends that the Council find that NWN complies with the land use standard, OAR
11 345-022-0030, subject to the conditions described in detail in Attachments A and B and listed in
12 section VI of this order.

13 14 **5. OAR 345-022-0040 Protected Areas**

15 This standard prohibits the siting of an energy facility in any of the protected areas listed in OAR
16 345-022-0040(1). The council must determine whether, taking into account mitigation, the
17 design, construction and operation of a facility located outside the areas listed in OAR 345-022-
18 0040(1) is likely to result in significant adverse impact to any of the listed protected areas.

19 20 **Discussion**

21 NWN identified 10 protected areas within 10 miles of the proposed corridor. Two of the
22 protected areas listed in this rule, the Tualatin River National Wildlife Refuge and the
23 Willamette River Greenway, are within or adjacent to the proposed corridor.

24
25 Of the protected areas that are not within or adjacent to the proposed corridor, the nearest is
26 Molalla River State Park, located two miles from the proposed corridor. All other protected
27 areas are further than two miles.

28
29 In the Project Order, OOE defined the analysis area for this standard as one mile from the
30 proposed corridor. The proposed pipeline will be underground its entire length, with the
31 exception of isolation valves and internal inspection stations required by federal safety
32 regulations. The pipeline will not produce noise or air or liquid effluent. For operational
33 reasons, the valve and inspection stations are placed near existing roads, to allow access. The
34 impacts from the pipeline are primarily due to construction. Construction impacts will be
35 temporary and will be limited to the construction corridor. At the completion of construction,
36 NWN must restore the right of way, to the extent practicable, to its original condition, in
37 accordance with conditions recommended under the Council's Land Use, Soil Protection and
38 Fish and Wildlife Habitat Standards. Therefore, OOE recommends the Council find that the
39 proposed pipeline will not impact protected areas that are not within or adjacent to the proposed
40 corridor.

41 42 Tualatin River Wildlife Refuge

43 The Tualatin River Wildlife Refuge is under U.S. Fish and Wildlife Service jurisdiction.
44 Although NWN does not propose to put the pipeline within the Refuge, the proposed corridor
45 follows the road that defines the Refuge's eastern border for a distance of about one mile. No
46 above ground facilities are proposed along this stretch. Once construction is complete, NWN
47 must restore the site to preclude drainage, erosion and other soil impacts in accordance with
48 conditions recommended under the Council's Land Use, Soil and Fish and Wildlife Habitat
49 standards. Therefore the only impacts on the Refuge are the temporary impacts of construction.

1 These impacts include noise and increased traffic along the roads that define the refuge border.
2 However, NWN has committed to use no Refuge land for staging, laydown area or any other
3 construction activity. Therefore OOE recommends the Council find that the proposed pipeline
4 will not have a significant adverse impact on the Refuge.
5

6 Willamette River Greenway

7 The Willamette River Greenway is defined in Statewide Planning Goal 15 and implemented by
8 Clackamas County Zoning Ordinance ZDO 705. Under the Statewide Planning Goal, the banks
9 of the Willamette are protected essentially along the river's entire length. NWN proposes to
10 cross the Willamette River at a point west of Wilsonville and just south of the intersection of
11 Wilsonville and Graham's Ferry roads.
12

13 Pursuant to section (2) of this standard, the Council may issue a site certificate for a natural gas
14 pipeline located in a protected area if alternate routes have been studied and determined to have
15 greater impacts. In the case of this pipeline, any route from Washington County to the Molalla
16 area must cross the Willamette at some point. However, NWN did study a number of alternative
17 crossing locations and found that very few options are available to cross the Willamette River
18 because of houses built along the river's edge and bore alignment feasibility considerations.
19

20 The Willamette River must be directionally bored to assure adequate depth under the river
21 bottom to prevent damage to the pipe due to erosion caused by floods and fast currents. In
22 addition, boring will eliminate any construction work within the river and ensure no disruption or
23 impacts to the riparian area adjacent to the river's edge. A typical configuration of this crossing
24 is shown in Figure K-8 of the ASC. The minimum radius of curvature for the 24-inch-diameter
25 pipe is about 2,400 feet, the river is approximately 660 feet across, and the required depth is a
26 minimum of 30 feet below the river bottom. This configuration requires that the bore be
27 approximately 3,300 feet long with a 15-degree entry and exit angle.
28

29 The boring operation requires that a pipe laydown area, equal in length to the crossing distance
30 (3,300 feet), be positioned perpendicular to the river on one side of the crossing for the pipe pull.
31 A large piece of property is also necessary directly across the river from the pipe laydown area to
32 accommodate the huge boring machinery. Both of these land parcels need to be relatively flat.
33 NWN studied the Willamette River extensively between I-5 and the western boundary of the
34 Project Study Area to find an appropriate location for crossing. The choices were few because
35 the riverbanks are lined with houses and other development throughout most of this area, and
36 because suitable locations on the north side of the river rarely line up with suitable locations on
37 the south side.
38

39 Alternatives to the east of the proposed crossing location were unsuitable because of the lack of
40 available space for the large boring equipment. The terrain to the west of the proposed crossing
41 location changes to hills and valleys and there was no large flat parcel for the laydown area
42 required for a bore of this size. The proposed location utilizes an undeveloped state-owned land
43 parcel on the south bank of the river. NWN contacted Dave Wright, property manager with the
44 state parks department, and he indicated the Parks Department did not anticipate any problem
45 with boring the pipeline under the Parks Department parcel on the south side of the Willamette
46 River. NWN must obtain a permanent easement from the State of Oregon for pipeline
47 maintenance.
48

1 The installation under the river allows complete avoidance of the riparian area on both sides of
2 the river, with the drilling operation commencing more than 1,300 feet from the water's edge on
3 both banks, using publicly owned property for the horizontal drilling operation on the south
4 bank.

6 **Conclusion**

7 The proposed pipeline avoids all protected areas except the Willamette River Greenway. Under
8 section (2) of the standard, the pipeline may be permitted because there is no route that does not
9 cross the Willamette River at some point, because NWN looked extensively for alternate
10 crossing locations and found none that did not have greater impacts, and because the bore sites
11 will be located 1,300 feet from the river's edge. NWN's commitment to locate the bore sites at
12 this distance should be made a site certificate condition. Subject to that condition, OOE
13 recommends that the Council find that NWN meets the protected areas standard, OAR 345-022-
14 0040.

16 **6. OAR 345-022-0050 Retirement and Financial Assurance**

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

- 18 1) The site, taking into account mitigation, can be restored adequately to a useful, non-
19 hazardous condition following permanent cessation of construction or operation of the
20 facility.
- 21 2) The applicant has a reasonable likelihood of obtaining a bond or letter of credit in a form
22 and amount satisfactory to the Council to restore the site to a useful, non-hazardous
23 condition.

24
25 NWN does not foresee retirement of the SMPE. However, this standard requires the Council to
26 consider the possibility that the site certificate holder will retire the facility early or will begin
27 construction and fail to complete it.

28
29 NWN estimates that construction should take approximately six months. If construction begins
30 late in the summer and extends into the autumn, NWN may find it necessary to delay
31 construction, particularly in wetlands and areas subject to flooding. Construction would then be
32 completed the following summer. It is unlikely that NWN will begin construction but not
33 complete it in a timely fashion. If that were to occur, however, the pipe already in the ground
34 would be abandoned in place and the trenches restored to pre-construction condition. The cost
35 would depend on the amount of construction work done prior to abandonment. NWN estimates
36 that the cost of such restoration would not exceed \$700,000. NWN states that this amount is
37 sufficient to restore up to 20 miles of open trench. However, NWN has pointed out that since
38 most the construction is along suburban roads, the county road departments would limit the
39 length of the active construction zone to about four miles at a time. Therefore, OOE
40 recommends the Council find that a surety amount of \$700,000 should be sufficient.

41
42 Once the project is complete, retirement of the pipeline would be relatively simple. NWN would
43 remove above ground structures, purge the pipeline with nitrogen to ensure that no hazardous
44 materials remain, and cut and cap the pipeline. Right of way restoration would already be
45 complete, because NWN is required to restore the right of way as part of initial construction.
46 NWN estimates the cost of retirement of the South Mist Pipeline Extension at \$86,000.

47
48 NWN annual reports for 1997 through 2000 show that the company had annual revenues
49 between 351 to 532 million dollars, with net operating revenues from 221 to 257 million dollars

1 annually, and increasing revenues each of those years. NWN has paid an increasing dividend on
2 stock each year for 45 years.

3
4 The annual reports demonstrate that the cost to restore the site as required by OAR 345-022-
5 0050 is a small fraction of NWN's net revenue. Moreover, the NWN Integrated Resource Plan
6 reviewed by the Oregon Public Utility Commission indicates that the SMPE would reduce the
7 net present valued cost of service over the next 30 years by approximately \$250 million.
8 Amendments 4 through 7 to the Mist Underground Storage Facility site certificate and
9 Amendment 2 of the South Mist Feeder Pipeline site certificate, the Council found that NWN
10 could adequately restore those sites without providing a bond or letter of credit. However, the
11 Council in 2001 established that a bond or letter of credit is the only form of financial instrument
12 acceptable for purposes of this standard. Based on the financial reports described above and the
13 findings made by the Council in the above site certificate amendments, OOE recommends that
14 the Council find a reasonable likelihood that NWN can obtain a bond or letter of credit in the
15 amount of \$700,000 for the construction phase and \$86,000 in the operation phase.

16
17 The Office recommends conditions consistent with the mandatory conditions at OAR 345-027-
18 0020(8), (9) and (16), with appropriate detail regarding amount and terms. The recommended
19 conditions appear at section VI of this Order.

20 21 **Conclusion**

22 The Office recommends that the Council find that NWN has a reasonable likelihood of obtaining
23 a bond or letter of credit in an amount adequate to restore the site to a useful, non-hazardous
24 condition if the certificate holder either begins, but does not complete, construction of the facility
25 or permanently closes the facility before establishing the financial mechanism or instrument
26 described in OAR 345-027-0020(9). The Office further recommends that the Council find that
27 NWN meets the retirement and financial assurance standard, subject to the conditions applicable
28 to that standard set forth in section VI of this Order.

29 30 **7. OAR 345-022-0060 Fish and Wildlife Habitat**

31 To issue a site certificate, the Council must find that the design, construction, operation and
32 retirement of the facility, taking into account mitigation, are consistent with the fish and wildlife
33 habitat mitigation goals and standards of OAR 635-415-0025 in effect as of September 1, 2000
34 (April 2002 edition)

35
36 The Council's rules define mitigation as follows:

37
38 "Mitigation" means taking one or more of the following actions listed in order of priority:

39 (a) Avoiding the impact altogether by not taking a certain action or parts of an action;

40 (b) Minimizing impacts by limiting the degree or magnitude of the action and its
41 implementation;

42 (c) Partially or completely rectifying the impact by repairing, rehabilitating, or restoring
43 the affected environment;

44 (d) Reducing or eliminating the impact over time by preservation and maintenance
45 operations during the life of the action by monitoring and taking appropriate corrective
46 measures;

47 (e) Partially or completely compensating for the impact by replacing or providing
48 comparable substitute resources or environments; or

49 (f) Implementing other measures approved by the Council.

1
2 OAR 345-001-0010(29). With the exception of subsection (f), this definition is virtually the
3 same definition used by both the Oregon Department of Fish & Wildlife in its habitat mitigation
4 policy and the Division of State Lands in administering the wetlands removal fill program.⁶
5

6 **DISCUSSION**

7 OAR 635-415-0025 describes six categories of habitat in order of their value. The rule then
8 establishes mitigation goals and corresponding implementation standards for each habitat
9 category.
10

11 **Habitat Categories**

12 Habitat Category 1 is “irreplaceable, essential habitat for a fish or wildlife species,
13 population, or a unique assemblage of species and is limited on either a physiographic
14 province or site-specific basis, depending on the individual species, population or unique
15 assemblage.” The mitigation goal for Habitat Category 1 is “no loss of either habitat
16 quantity or quality.” The implementation standard requires “avoidance of impacts
17 through alternatives to the proposed development action.”
18

19 Habitat Category 2 is “essential habitat for a fish or wildlife species, population, or
20 unique assemblage of species and is limited either on a physiographic province or site-
21 specific basis depending on the individual species, population or unique assemblage.”
22 The mitigation goal for Habitat Category 2, if impacts are unavoidable, is "no net loss of
23 either habitat quantity or quality and to provide a net benefit of habitat quantity or
24 quality.” The implementation standard is “avoidance of impact through alternatives to
25 the proposed development action” or “mitigation of impacts, if unavoidable, through
26 reliable in-kind, in-proximity habitat mitigation to achieve no net loss of either pre-
27 development habitat quantity or quality. In addition, a net benefit of habitat quantity or
28 quality must be provided.”
29

30 Habitat Category 3 is “essential habitat for fish and wildlife, or important habitat for fish
31 and wildlife that is limited either on a physiographic province or site-specific basis,
32 depending on the individual species or population.” The mitigation goal for Habitat
33 Category 3 is "no net loss of either habitat quantity or quality." The implementation
34 standard is “avoidance of impacts through alternatives to the proposed development
35 action” or “mitigation of impacts, if unavoidable, through reliable in-kind, in-proximity

⁶ Compare ODFW rule 635-415-0005(16) "Mitigation" means taking one or more of the following actions listed in order of priority:

- (a) Avoiding the impact altogether by not taking a certain development action or parts of that action;
- (b) Minimizing impacts by limiting the degree or magnitude of the development action and its implementation;
- (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the development action and by monitoring and taking appropriate corrective measures;
- (e) Compensating for the impact by replacing or providing comparable substitute resources or environments.

with

DSL rule 141-085-0010(24): "Mitigation" means the reduction of adverse effects of a proposed project by considering, in the following order:

- (a) Avoiding the impact altogether by not taking a certain action or parts of an action;
- (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- (c) Rectifying the impact by repairing, rehabilitating or restoring the affected environment;
- (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action by monitoring and taking appropriate corrective measures; and
- (e) Compensating for the impact by replacing or providing comparable substitute wetland or water resources.

1 habitat mitigation to achieve no net loss in either pre-development habitat quantity or
2 quality.”

3
4 Habitat Category 4 is “important habitat for fish and wildlife species.” The mitigation
5 goal for Habitat Category 4 is "no net loss in either existing habitat quantity or quality.”
6 The implementation standard is “avoidance of impacts through alternatives to the
7 proposed development action” or “mitigation of impacts, if unavoidable, through reliable
8 in-kind or out-of-kind, in-proximity or off-proximity habitat mitigation to achieve no net
9 loss in either pre-development habitat quantity or quality.”

10
11 Habitat Category 5 is “habitat for fish and wildlife having high potential to become either
12 essential or important habitat.” The mitigation goal for Habitat Category 5, if impacts are
13 unavoidable, is "to provide a net benefit in habitat quantity or quality.” The
14 implementation standard is “avoidance of impacts through alternatives to the proposed
15 development action” or “mitigation of impacts, if unavoidable, through actions that
16 contribute to essential or important habitat.”

17
18 Habitat Category 6 is “habitat that has low potential to become essential or important
19 habitat for fish and wildlife.” The mitigation goal for Habitat Category 6 is "to minimize
20 impacts.” The implementation standard is to “minimize direct habitat loss and avoid
21 impacts to off-site habitat.”

22
23 The habitat impacts of construction, operation and retirement of the facility may be so significant
24 in nature, extent or duration that mitigation measures to achieve the goals and standards of OAR
25 635-415-0025 cannot be identified without the evaluation that would be provided in a written
26 mitigation plan. A "mitigation plan" means a written plan that is substantially as described in
27 OAR 635-415-0020 and is approved by the Office of Energy in consultation with the Oregon
28 Department of Fish and Wildlife (ODFW).

29
30 For Habitat Categories 2, 3 and 4, the applicant (or certificate holder) must report progress
31 towards achieving the mitigation goals and standards on a schedule agreed to in the mitigation
32 plan performance measures. The fish and wildlife mitigation measures must be implemented and
33 completed either prior to or concurrent with the development action.

34 General Considerations

35
36 NWN, in its application, proposes to construct a pipeline within a 200-foot-wide Preferred
37 Corridor that extends between the Bacona Blowdown Station in northern Washington County
38 and the Mollala Gate Station near Mollala in western Clackamas County. The application also
39 identifies several 200-foot-wide Alternative Corridor Segments. Each of these provides an
40 alternative to a portion of the Preferred Corridor. In order to allow flexibility, NWN requests the
41 Council approve both the Preferred Corridor and each of the Alternative Corridor Segments.

42
43 Construction of the pipeline would generally require a 80-foot-wide construction corridor. This
44 corridor would be within the 200-foot corridors identified in the application. In general, the
45 remaining 120 feet would not be affected.

46
47 Because NWN has requested approval of a 200-foot corridor, and because the exact alignment
48 within that corridor will not be known until construction begins, the precise acreage and location
49 of the specific habitats affected are not known at this time. However, the applicant has

1 inventoried habitat types and their locations within the entire 200 foot corridor. The Office, in
2 consultation with ODFW, concurs that the habitat types are adequately inventoried in the
3 application.

4
5 NWN has proposed, in general terms, mitigation steps that they would perform for any given
6 habitat type and category, should they encounter that habitat during construction. The term
7 "mitigation" as used in this section of this order means all of the steps taken to ensure that there
8 is no net loss of habitat. Mitigation in this context may include avoidance, restoration of affected
9 habitat, or replacement of affected habitat. The terms "restoration" and "restore" as used in this
10 section of this order mean to take actions to return the disturbed area, in this case the
11 construction corridor and other areas affected by construction, to conditions that are similar to
12 those that existed prior to construction.⁷

13
14 The general description of habitat types and general mitigation steps appropriate to those habitat
15 types is contained in NWN's "Conceptual Mitigation Plan" (CMP) dated September 2001. NWN
16 submitted the CMP after consultation with OOE. NWN has stated that, until the exact pipeline
17 alignment is known, mitigation can only be described in general terms. However OOE notes that
18 mitigation must be described in sufficient detail to determine whether it meets the standard.
19 Therefore, the fundamental components of the CMP should include:

- 20
21 (1) identify the anticipated impacts of construction and operation of the pipeline;
22 (2) include proposed measures to minimize habitat impacts during construction and operation;
23 (3) explain how NWN would insure that the construction contractor carries out proposed
24 construction measures;
25 (4) contain a menu that would match types of habitats subject to potential impacts with
26 corresponding appropriate mitigation measures; and
27 (5) include a schedule for the development and submission of a Detailed Mitigation Plan
28 (DMP).

29
30 NWN submitted a CMP in response to these concerns.⁸ In addition, for this application, NWN
31 and the state agencies agreed that, in addition to the CMP, NWN would submit a final detailed
32 mitigation plan (DMP) after construction of the pipeline was complete. This DMP would
33 describe all mitigation measures take during construction, would provide details of all mitigation
34 measures remaining to be taken, and would include a detailed monitoring plan to ensure that
35 measures were successful.

36 37 Adequacy of the Conceptual Mitigation Plan

38 The Council has previously allowed an applicant to submit a conceptual mitigation plan to
39 support a finding of compliance with the Habitat Standard. *See* Final Order South Mist Feeder
40 Amendment No. 2, April 9, 1999 (Final Order, Amendment 2). In that proceeding, NWN
41 submitted a Preliminary Mitigation Plan (PMP) that included detailed measures to be undertaken

⁷ As used in this section of the Order, the terms "restoration" and "restore" refers to subsection (c) of the Council's mitigation definition, and is an action that is taken to "rectify" the impact on site. This definition is different than that used by the Division of State Lands (DSL) when considering a compensatory mitigation plan for a removal-fill permit. Restore and restoration as used by DSL in that context apply where there is a permanent loss of wetland, and mean to return another area that was formerly a wetland to a wetland in order to "compensate" for the wetland that has been permanently lost because of the fill project.

⁸ NWN submitted its CMP. in two parts. Part 1 addressed compliance with DSL wetland requirements and Part 2 addressed compliance with ODFW habitat mitigation requirements. Measures for providing a "net benefit" in order to meet the Council's Fish and Wildlife Standard are found in Part 2.

1 to insure consistency with the ODFW habitat standard and applicable DSL removal/fill
2 requirements. See Final Order, Amendment 2, pages 23 – 36. In the final order, the Council
3 imposed as conditions all of the measures identified by NWN, whether in its application for
4 amendment or in the PMP. In addition, the Council imposed as conditions additional measures
5 identified by ODFW as necessary to ensure adequate mitigation for construction of the pipeline.
6 In addition to the CMP, the application for site certificate also identified specific measures to
7 mitigate construction impacts. For example, regarding Category 2 habitats, NWN states:

8
9 Potential adverse impacts to Category 2 habitats would be avoided, minimized, or
10 mitigated. Mitigation measures to be employed include avoiding removal of vegetation,
11 especially riparian trees wherever possible; constricting the construction right-of-way
12 width from 80 feet to 40 feet when entering streams, riparian areas, and wetlands;
13 limiting construction activities to within or adjacent to public road rights-of-way as set
14 forth in Exhibit K; using Best Management Practices (BMPs) to prevent erosion of soil
15 into stream channels and ponds; avoiding in-stream construction during the critical life
16 phases of sensitive fish species; if possible, avoiding construction during breeding
17 seasons and critical rearing times at sites where sensitive wildlife species are known to
18 occur; restoring disturbed riparian areas with native species and natural habitat features
19 such as dead and downed woody material, snags, and rocks; restoring stream beds and
20 bank affected by construction to their original condition or better (for example, by adding
21 woody debris or gravel); and controlling invasive, weedy plant species (such as
22 Himalayan blackberry and Scotch broom) where necessary (as indicated by monitoring)
23 during maintenance of mitigation sites and the 10-foot-wide maintenance zone over the
24 pipeline that will not be allowed to support vegetation taller than five feet after
25 construction.

26
27 Exhibit P, page P-20.⁹

28
29 The question to be determined by the Council is whether the mitigation measures identified by
30 NWN are sufficient to demonstrate that the project is consistent with the fish and wildlife habitat
31 goals and standards. OOE has reviewed the application and CMP to determine whether NWN
32 has proposed adequate measures to ensure that NWN will provide habitat protection that is
33 consistent with the requirements of each habitat category. OOE recommends that the Council
34 find that the CMP, combined with other measures identified in the application, provide an
35 adequate universe of measures to meet the mitigation requirements. OOE recommends that the
36 Council impose conditions described below to ensure that NWN applies the most appropriate
37 measures for any identified impact.

38
39 A concern with the CMP approach is that it appears that there may be a considerable lag between
40 when the pipeline is constructed and the DMP is in place. NWN has proposed that the DMP be
41 submitted 120 days “following construction.” See Wetland Mitigation Plan, Part 1, Section 6.0.
42 NWN’s schedule allows for an additional 180 days for administrative approval of the DMP. The
43 proposed schedule would allow NWN up to a year after construction of the pipeline is completed

⁹ This paragraph was repeated for habitat categories 3 and 4. See pp. P-27 and P-33. Similar representations as to appropriate mitigation were repeated for habitat category 6, see p. P-39. NWN states that there are no impacts to habitat category 5, and thus does not propose mitigation for that category. See p. P-35. The paragraph was amended slightly in NWN’s responses to requests for additional information dated July 3, 2001, to clarify that “breeding season” referred to wildlife species. See Responses to Completeness Questions, Exhibits P and Q, p. 3.

1 to begin implementing mitigation measures. OOE believes that this amount of time is
2 unreasonable and may result in irreparable harm to habitat.

3
4 Both ODFW and DSL require mitigation measures to be taken concurrently with the
5 development action. For example, OAR 635-415-0025 states in part “[t]he fish and wildlife
6 mitigation measures shall be implemented and completed either prior to or concurrent with the
7 development action. If this cannot be achieved, ODFW shall recommend against or shall not
8 authorize the proposed development action.” The removal fill permit provided to NWN¹⁰ by
9 DSL contains the following provision in the section entitled “Mitigation Conditions”:

- 10
11 10. The following conditions apply to the Conceptual Mitigation Plan (Attachment 6)
12 Section 4.0 Mitigation Approach through Section 5.4 Waterways and Sheets
13 associated with Figures 1 and 2 in Appendix F of the permit application.
14 a) The stream/wetland restoration and enhancements shall be constructed prior
15 to or concurrently with the sewer [sic] line project.¹¹
16

17 Thus, OOE recommends that the Council adopt a condition in the site certificate requiring NWN
18 to take mitigation actions to preserve and restore the habitat promptly after completing
19 installation of the pipeline. OOE also recommends that the condition also require NWN to take
20 appropriate steps to insure that any mitigation delayed until after completion of entire pipeline
21 will be achievable and successful.

22 Identification of Habitat Types in Analysis Area

23 The Analysis Area included both the Preferred Corridor and the Alternate Corridor Segments.
24 The Analysis Area for fish and wildlife habitat included the area required for construction (an
25 80-foot-wide construction corridor) plus a minimum of 200 feet on either side of the construction
26 corridor (total 480 feet).
27

28
29 NWN identified eight basic habitat types and a total of 39 habitat subtypes in the Analysis Area.
30 The basic habitat types are: riparian forests (which occur adjacent to streams), upland forests,
31 upland shrublands, upland grasslands, wetlands, waters (which include streams, ditches,
32 permanent ponds and seasonal ponds), farm lands and developed areas (such as buildings and
33 pavement). These are shown in Exhibit P, Table P-1, Volume 7, March 2001.
34

35 NWN identified 50 potential stream crossings within the analysis area. These crossings are
36 characterized by habitat type and proposed crossing method and are assigned numbers for
37 identification purposes in Revised Supplemental Table P-4, attached to a letter from Hayward,
38 NWN, to Meehan, OOE, dated May 15, 2002.¹²
39

40 Within the proposed 200-foot corridor area, NWN identified an 80 foot-wide corridor that they
41 called the “preferred alignment” for the pipeline. However, NWN did not commit to limit
42 construction to this 80-foot corridor, but requested a site certificate for a 200-foot corridor to

¹⁰ OOE has analyzed the removal/fill permit as a draft and as DSL’s recommendation that NWN has met the requirements for a permit. See section IV.D.1 of this order.

¹¹ The “permit application” is the joint wetland permit application form submitted to DSL and the Army Corps of Engineers, found in Exhibit J of this ASC.

¹² This table is the basis for all stream crossings discussed in this Order.

1 allow flexibility. Therefore, OOE must make recommendations regarding compliance with the
2 fish and wildlife standard on the full 200-foot corridor.

3
4 In text and graphical form, the application includes an inventory of habitat type and category
5 over the full 200-corridor and alternate proposed corridors. However, for purposes of
6 quantifying impact, NWN has provided tabular data describing habitat type and expected impact
7 over the 80-foot preferred alignment. If NWN deviates from that alignment, the acreage in this
8 tabular data will change. OOE does not expect the change to be significant. For purposes of
9 quantifying impact, NWN prepared Table P-5 in the ASC. Based on OOE comments, NWN
10 revised the table on March 5, 2002. That table is the basis for acreage estimates in this
11 discussion.

12
13 Because NWN has focused on the 80-foot preferred alignment in quantifying impact and
14 describing mitigation, OOE has recommended a condition limiting construction to that preferred
15 alignment. If NWN deviates from this alignment, the condition would require NWN to obtain
16 prior OOE approval. The conditions also set forth a protocol for requesting such deviations, and
17 set forth criteria that OOE will use in determining whether the deviation should be granted.
18 OOE recommends that the Council authorize OOE to approve such deviations within the 200
19 foot corridor, based on these criteria. In no event would such a deviation include siting the
20 project outside the 200-foot proposed corridor.

21
22 OOE notes that, in some segments of the pipeline, conditions limiting the placement of the
23 pipeline for habitat purposes could create a conflict with conditions required under the EFSC
24 Land Use standard, particularly regarding protection of farm land in the EFU zone. Therefore
25 OOE proposes a condition requiring NWN to consult with OOE in the event of such a conflict,
26 and setting forth criteria for resolving the conflict. Briefly, the recommended criteria state that
27 NWN may site within the EFU zone to avoid jurisdictional wetlands and category 1 or 2 habitat,
28 but must avoid farm land within the EFU and outside public right-of-way and rely on mitigation
29 for other habitat categories.

30
31 Because the tabular data provided in the ASC focuses on the 80-foot preferred alignment, OOE
32 has prepared a table that lists all wetlands within the full 200-foot corridor and characterizes
33 them in terms of proposed construction method (including avoidance by HDD bore or avoidance
34 altogether) and potential for mitigation. The table identifies which wetlands are within the 80-
35 foot "preferred alignment" and which are in the remaining 120 feet. The table further identifies
36 which wetlands should be avoided altogether, and identifies pipeline segments where deviation
37 from the 80-foot "preferred alignment" could result in impact to either higher quality or greater
38 quantity of wetlands. This table is available from OOE, and is part of the basis for the protocol
39 that NWN shall follow if it deviates from the 80-foot preferred alignment.

40
41 Category 1. The analysis area contains three category 1 habitat subtypes: category 1 streams,
42 riparian forest and riparian shrub, both of which occur along category 1 streams.

43
44 The proposed project (considering the Preferred Corridor and all Alternative Corridor Segments
45 combined) has a total of ten category 1 stream crossings. The preferred alignment requires 9
46 category 1 stream crossings: the Willamette River, Tualatin River (3 crossings), Pudding River,
47 Dairy Creek (2 crossings), and East Fork Dairy Creek (2 crossings).

1 Category 2. The analysis area contains seven category 2 habitat subtypes: category 2 streams;
2 riparian forest and riparian shrub, both of which occur along category 2 streams; three types of
3 palustrine wetlands (forested, shrub and emergent); and permanent ponds.
4

5 The proposed project has a total of 14 category 2 stream crossings. The preferred alignment has
6 11 category 2 stream crossings (the preferred alignment avoids one crossing altogether).
7

8 Category 3. The analysis area contains nine category 3 habitat subtypes: category 3 streams;
9 riparian forest and riparian shrub, both of which occur along category 3 streams; conifer forest;
10 deciduous forest; three types of palustrine wetlands (forested, shrub and emergent); and
11 permanent ponds
12

13 The proposed project has a total of 18 category 3 stream crossings. The preferred alignment has
14 13 category 3 stream crossings (and avoids one crossing altogether).
15

16 Category 4. The analysis area contains thirteen category 4 habitat subtypes: category 4 streams;
17 riparian forest and riparian shrub, both of which occur along category 4 streams; conifer forest;
18 deciduous forest; mixed forest; early seral forest; upland scrub-shrub; upland grasslands which
19 are associated with fences; upland pasture/grasslands; and three types of palustrine wetlands
20 (forested, shrub and emergent).
21

22 The proposed project has no category 4 stream crossings.
23

24 Category 5. The analysis area contains one category 5 habitat subtype: non-fish-bearing streams
25 that do not flow into a fish-bearing stream. The proposed corridor, including all alternates,
26 contains three category 5 stream crossings. Since only one alternative alignment will eventually
27 be used, the construction corridor will contain only two such streams. NWN proposes to bore
28 under one and avoid the other.
29

30 Category 6. The analysis area contains six Category 6 habitat subtypes:
31 building/pavement/barren areas; large residential lots; nurseries and orchards; cultivated row
32 crops; low quality, non-fish-bearing waterways and associated riparian shrub.
33

34 The proposed project has a total of five Category 6 waterway crossings: four small, unnamed
35 creeks and one ditch. The preferred alignment requires four category 6 stream crossings.
36

37 The above habitat subtypes along the 200-foot preferred and alternate corridors are described in
38 the ASC, Exhibit P, in terms of location, habitat type and category. OOE and ODFW staff
39 inspected the site, reviewed the ASC and recommended certain corrections, which NWN has
40 incorporated into revised tables and figures in the ASC. With these revisions, OOE recommends
41 that the Council find that NWN has correctly characterized the site in terms of habitat type and
42 category. The finalized habitat inventory is found in the following: Exhibit P, Table P-1,
43 Volume 7, March 2001; Exhibit P, Figure P-2, Volume 7, March 2001; and Exhibit P,
44 Supplemental Figure P-2, Volume 7, June 2002.
45

46 Potential Impacts from Construction and Proposed Mitigation during Construction

47 The major potential impacts from construction of the proposed pipeline include and result from:
48 removing vegetation; disturbing soils; and disturbing stream beds, banks and water flow. With
49 careful siting and construction, most of these impacts should be temporary because the pipe

1 would be placed underground and the land surface would be returned to near pre-construction
2 conditions after the pipeline has been constructed and tested. Permanent loss of habitat would be
3 minimal because the project requires less than one-half an acre for new above-ground facilities
4 that occupy land surface. These above-ground facilities would be located almost entirely within
5 category 6 habitat and may affect some category 4 (cropland) depending on final design. NWN
6 would allow vegetation to return to pre-construction conditions within most of the permanent
7 right-of-way (Maintenance Easement), which would typically be 40 feet wide. However, NWN
8 would keep vegetation with roots systems that could damage the pipeline (such as large trees)
9 from growing near the pipeline (a zone about 10 feet in width centered on the pipeline).

10
11 NWN proposes to avoid a number of potential impacts, such as direct impact to Category 1
12 habitat, by a combination of route selection and construction methods, such as underground
13 boring, rather than open trenching. NWN proposes construction methods that reduce impacts to
14 areas that cannot be avoided, such as crossing streams when there is no or little flow when
15 practicable. After construction, NWN would restore stream banks and beds to near pre-
16 construction conditions and replant lands that are not developed or used for agriculture
17 (primarily wetlands, waterways and associated riparian areas) with appropriate plant species for
18 erosion control and wildlife habitat.

19
20 The proposed project (the Preferred Corridor and all Alternative Corridor Segments combined)
21 would directly affect no Category 1 habitat¹³, less than one and one-half acres of Category 2
22 habitat, less than six acres of Category 3 habitat, no more than 250 acres of Category 4 habitat,
23 less than 0.1 acre of Category 5 habitat and no more than 360 acres of Category 6 habitat.
24 (Revised Supplemental Table P-5, attached to letter from Hayward, NWN, to Meehan, OOE,
25 dated March 5, 2002).¹⁴

26
27 Category 1. NWN proposes to avoid all category 1 habitat in all preferred and alternative
28 corridor segments (Hayward, NWN, letter to Meehan, OOE, dated October 26, 2001): none
29 would be directly affected by construction. All stream crossings would be done by boring under
30 the stream and associated riparian area. This would avoid direct impact to all Category 1 streams
31 and their associated riparian habitat within the entire 200 foot-wide preferred and alternative
32 corridor segments.

33
34 In its description of the HDD installation of the pipeline, NWN acknowledged that there is a risk
35 of the loss of drill mud (bentonite slurry) into the stream. (See e.g., p. P-35) NWN noted that
36 monitoring of bentonite pressure and stream crossings would allow an immediate response if a
37 leak develops. NWN provided the following contingent mitigation measures to manage a release
38 of drilling mud (bentonite) into a stream:

39
40 In the event of a release of drilling mud (bentonite) as a result of boring
41 operations during pipeline construction, the boring operation is stopped until a siltation
42 fence is placed around the release point. Drilling mud will be pumped from the
43 containment area as needed until the boring is completed. The release point will be fully
44 encircled with siltation fencing, and the drilling mud will be allowed to vent into the
45 enclosure. When the enclosure becomes nearly full, the drilling mud will be removed via

¹³ This assertion is based on NWN's proposal to avoid all Category 1 habitat through the use of HDD installation method.

¹⁴ This table is the basis for all acreage discussed in this section.

1 vacuum truck or pump. Equipment choice depends on accessibility to the site. The
2 siltation fencing will remain in place during the boring, back reaming, and pipe-pulling
3 procedures and after completion to ensure the vent has sealed. The enclosure will only be
4 removed after all evidence of release has ceased.
5

6 The Council has previously held that the mitigation goal of “no loss of either habitat units or
7 habitat value allows minor, temporary disturbance to limited areas that does not result in loss of
8 habitat units or habitat value for the species in question.” Final Order, Amendment 2, p. 13.
9 Therefore, OOE recommends that the Council find that the procedure outlined by NWN will
10 mitigate fully for the temporary effects of incursions of bentonite. OOE further recommends that
11 the Council require this procedure as a condition of the site certificate.
12

13 The Council has previously found that HDD boring is an avoidance measure. Final Order,
14 Amendment 2, p. 18. NWN proposes to avoid all Category 1 habitat through the use of HDD
15 boring. Therefore, OOE recommends that the Council find that NWN has satisfied the fish and
16 wildlife habitat standard with regard to Category 1 habitat.
17

18 Category 2. NWN anticipates that project construction along the preferred alignment would
19 require 11 stream crossings and would directly affect no more than 0.1 acre of stream habitat,
20 one acre of associated riparian forest and no associated riparian shrub¹⁵. Most of this would
21 occur at stream crossing 51 (East Fork Dairy Creek) in Corridor Segment 1 at the northern end of
22 the route. (Exhibit P, Figure P-2, sheet 3 and Figure P-4, sheet 3, Volume 7, March 2001
23 Application)
24

25 NWN anticipates that project construction along the preferred alignment also would directly
26 affect 0.13 acre of palustrine forested wetland. Most of this is in Corridor Segment 1. The
27 project could also directly affect 0.06 acre of palustrine emergent wetland if NWN builds the
28 pipeline on Alternative Corridor Segment 4b.
29

30 NWN proposes to avoid construction in the remaining category 2 habitat subtypes (palustrine
31 emergent wetland, scrub-shrub wetlands and permanent ponds) and these would not be directly
32 affected, if NWN follows the preferred alignment. If construction deviates from the preferred
33 alignment, acreage for various habitats would differ, and in some cases different habitat subtypes
34 might be affected. However, the types of impact would be the same as those considered in this
35 section.
36

37 NWN did not identify or address any Category 2 upland habitat types within any proposed
38 corridor. Nor did NWN propose mitigation, including providing a net benefit, for such habitat.
39 OOE recommends that the Council find NWN must avoid Category 2 upland habitat types.
40

41 Stream and Riparian Habitats Along the preferred alignment, NWN proposes to bore under
42 streams at three stream crossings, and to cross over (above) stream culverts at three crossings.
43 These methods would avoid direct impact to stream habitat and associated riparian forest and
44 shrub habitat at six stream crossings.

¹⁵ Throughout this section, acreage are based on construction along the preferred alignment within each preferred corridor segment. If construction deviates from the preferred alignment, acreage for various habitats, and the number and location of stream crossings would differ. However, the types of impact would be the same as those considered in this discussion.

1
2 Along the preferred alignment, NWN proposes to trench across the remaining five Category 2
3 stream crossings using one of two methods: flume or dam and pump.
4

5 If NWN builds the pipeline along the alternative corridor segments rather than along the
6 preferred corridor segments, up to two different category 2 stream crossings might be needed.
7 One of these would be by boring under the stream and the other by the dam and pump method.
8

9 NWN proposes to complete each of these crossings within a 24-hour period, if practicable.

10 Potential impacts to stream habitat and its associated riparian habitat at these crossings include:
11 loss of riparian vegetation; impacts on fish spawning and migration; stranding of aquatic
12 organisms in the dewatered stream reach; increased sediment and turbidity in the construction
13 area and downstream; stream bank instability; stream bed erosion; loss of spawning substrate;
14 reduction in food resources for fish; reduced shelter and hiding locations for fish from loss of
15 riparian vegetation, and loss of in-stream large woody debris and rocks.
16

17 NWN proposes to reduce the loss of riparian vegetation by locating crossings to avoid removal
18 of large trees where practicable and reducing the construction corridor from 80 feet to about 40
19 feet wide within riparian habitats. NWN proposes to salvage and stockpile vegetation during
20 construction and to replant disturbed vegetation promptly. In addition, NWN proposes to replace
21 lost riparian vegetation by replanting the disturbed riparian area with a mixture of native grasses,
22 shrubs, and trees, as appropriate, to provide soil stabilization and shade.
23

24 NWN has attempted to find a pipeline route that avoids large trees to the extent possible.

25 Construction along NWN's preferred alignment would avoid removing any large trees from
26 riparian or wetland areas. If NWN must remove trees from category 2 habitats during
27 construction, NWN must, in order to meet the no net loss and in-kind/in-proximity goal, replant
28 the areas in which trees were taken with appropriate trees, or plant other appropriate areas with
29 appropriate trees to create or improve the habitat types from which the trees were taken.

30 NWN proposes to avoid adverse impacts on fish spawning and fish migration by avoiding stream
31 crossings during the critical life phases of sensitive fish species and following ODFW guidelines
32 for in-water work.
33

34 NWN proposes to prevent stranding fish (and large aquatic invertebrates) in the diversion reach
35 by having a qualified biologist capture fish in the diversion reach and release them downstream.
36 OOE recommends that the Council require NWN authorize the qualified fish biologist to stop
37 work on the project if necessary to protect potential stranded fish.
38

39 NWN proposes to reduce and control increased sediment and turbidity by: locating crossings to
40 avoid unstable stream banks and the need to remove large trees; de-watering the construction
41 reach during construction (by using a dam and flume or hose and pump to pass water around the
42 construction area); using erosion and sediment controls during and after construction; monitoring
43 turbidity during construction; and stabilizing stream banks and stream beds after construction.
44

45 NWN proposes to prevent stream bank instability after construction by: locating crossings to
46 avoid unstable stream banks and the need to remove large trees; stabilizing affected stream banks
47 and using Best Management Practices to control slope erosion after construction.
48

1 NWN proposes to prevent stream bed erosion after construction by restoring the stream bed to its
2 original condition (substrate and gradient) and adding large rocks and or gravels if needed.
3
4 NWN proposes to prevent loss of spawning substrate by restoring stream beds to their original
5 conditions, including replacing spawning gravels, and using measures listed above to control or
6 prevent the movement of soil and silt into streams.
7
8 NWN anticipates that stream crossing construction might result in reduced shelter and hiding
9 locations for fish from loss of riparian vegetation, and loss of in-stream woody debris and rocks.
10 NWN proposes to mitigate for this by replanting riparian areas and, where appropriate, adding
11 woody debris and rocks to the stream channel after it has installed the pipeline.
12
13 NWN anticipates that construction might also result in a short-term (six months) reduction in
14 food resources, such as aquatic macroinvertebrates, for fish. NWN did not identify specific
15 measures to mitigate for this. However, NWN proposes to add large woody debris to streams at
16 or near the crossing location to increase in-stream habitat diversity. In time, this added surface
17 area and habitat structure should allow for greater number and diversity of aquatic
18 macroinvertebrates than present prior to project construction. This should also result in
19 improved habitat for fish. OOE recommends that the Council find that the localized temporary
20 reduction in food resources will not result in a net loss of habitat quantity or quality.
21
22 Collectively, the above measures should result in no net loss of habitat quantity and quality and
23 provide a net benefit in habitat quality to category 2 stream and riparian habitat. This order
24 includes proposed conditions that require NWN to undertake these measures.
25
26 Wetland Habitats Potential impacts to palustrine forested and palustrine emergent wetland
27 habitats include: removing above ground woody vegetation, including trees, from the
28 construction corridor; disturbing and removing root systems as a result of trenching; and
29 disturbing the soil profile as a result of trenching and backfilling.
30
31 In addition, construction in wetlands has the potential to change the soil hydrology. This could
32 result in adversely affecting the size and quality of a wetland by draining the wetland.
33 Construction also has the potential to spread undesirable and non-native plant species into
34 wetlands, in particular, reed canary grass.
35
36 NWN proposes to reduce the direct impacts to category 2 wetland habitats by: confining
37 construction activities to a 40-foot wide construction corridor and minimizing heavy equipment
38 use within wetlands to the extent practicable; avoiding removing large woody vegetation where
39 practicable; constructing in wetlands when they are dry, to the extent practicable; using
40 construction mats when appropriate; removing topsoil (including plant roots) from the trench
41 separately from subsoil, stockpiling topsoil and subsoil separately and placing the topsoil
42 (including plant roots) on top of the subsoil when backfilling the trench; installing water barriers
43 along the pipeline trench and restoring impermeable soils to prevent draining wetlands; using
44 Best Management Practices (BMPs) to control erosion and turbidity and to prevent movement of
45 loose soil beyond the construction corridor.
46
47 NWN also proposes to rectify the impact of the construction corridor across wetlands by
48 repairing and restoring the wetland to return it to near its original grade and contour and
49 replanting with appropriate plant species to re-establish wetland vegetation.

1
2 NWN, in Exhibit P, did not propose measures to reduce the likelihood of introducing undesirable
3 plant species into wetlands. However, NWN did propose specific measures to reduce the
4 introduction and spread of undesirable plant species in Exhibit I, Soil Protection, Section V,
5 pages I-40 to 49. OOE has recommended conditions that require NWN to undertake preventative
6 measures to reduce the likelihood of introducing undesirable plant species into wetland habitats.
7 See section IV.A.3 of this order.

8
9 Category 3. NWN anticipates that project construction along the preferred alignment would
10 require 13 category 3 stream crossings and could directly affect no more than 0.1 acre of stream
11 habitat, no more than 2 acres of associated riparian forest and about 0.2 acre of associated
12 riparian shrub habitat.

13
14 NWN anticipates that project construction also would directly affect less than 2 acres of upland
15 deciduous forest and less than 2 acres of palustrine emergent wetland, less than 0.5 acre of
16 palustrine forested wetland and less than 0.1 acre of palustrine shrub wetland habitat.

17
18 NWN anticipates construction would avoid the remaining category 3 habitat subtypes (conifer
19 forest and permanent pond)and these would not be directly affected.

20
21 Stream and Riparian Habitats Along the preferred alignment, NWN proposes to avoid direct
22 impacts to streams and associated riparian habitat at six Category 3 stream crossings by boring
23 under the stream (four crossings) and crossing under the stream where it is in a culvert (2
24 crossings). The preferred alternative avoids another stream altogether.

25
26 Along the preferred alignment, NWN proposes to trench across the remaining seven stream
27 crossings using the dam and pump method.

28
29 If NWN builds the pipeline along the alternative corridor segments rather than along the
30 preferred corridor segments, up to four different category 3 stream crossings might be needed.
31 One of these would be by crossing over the stream where it is in a culvert and the other three by
32 the dam and pump method.

33
34 NWN proposes to complete each of these crossings within a 24-hour period, if practicable.
35 NWN proposes to reduce the loss of riparian vegetation by locating crossings to avoid removal
36 of large trees where practicable and reducing the construction corridor from 80 feet to about 40
37 feet wide. NWN proposes to replace lost riparian vegetation by replanting the disturbed riparian
38 area.

39
40 Potential impacts to stream habitat at the crossings which would be done by trenching are similar
41 to those described above for Category 2 stream crossings. However, they would generally be of
42 less magnitude because most Category 3 streams have less water flow and generally do not
43 provide good fish habitat (at the proposed crossing sites). NWN proposes to use the measures
44 described for Category 2 streams to avoid or reduce potential impacts to Category 3 streams and
45 to provide no net loss of habitat. NWN is not required to provide a net benefit to category 3
46 stream habitat.

47
48 Upland Habitats Potential impacts to upland deciduous forest habitat include: removing above
49 ground woody vegetation, including trees, from the construction corridor; disturbing the soil

1 surface within the construction corridor; disturbing and removing root systems as a result of
2 trenching; and disturbing the soil profile as a result of trenching and backfilling. Where
3 construction takes place in sloping terrain, an additional potential impact is the movement of
4 loose soil material (from trenching and grading) down slope, beyond the construction corridor,
5 and into water bodies.

6
7 NWN proposes to reduce the direct impacts to category 3 deciduous forest habitats by:
8 confining construction activities to an 80-foot wide construction corridor; avoiding removing
9 large woody vegetation where practicable; stockpiling excavated trench soils and replacing these
10 into the trench after the pipeline is in place; using Best Management Practices (BMPs) to prevent
11 loose soil movement beyond the construction corridor.

12
13 NWN also proposes to “restore” the construction corridor in upland habitats by returning it to
14 near its original grade and contour and replanting with an approved seed mix to re-establish
15 vegetation.

16
17 Wetland Habitats Potential impacts to palustrine emergent, shrub and forested wetland habitats
18 include those listed above for upland deciduous forest habitat. In addition, construction in
19 wetlands has the potential to change the soil hydrology. This could result in adversely affecting
20 the size and quality of a wetland by draining the wetland. Construction also has the potential to
21 spread undesirable and non-native plant species into wetlands.

22
23 NWN proposes to reduce and mitigate for impacts to Category 3 wetlands by using the measures
24 identified above for category 2 wetland habitats.

25
26 NWN has attempted to find a pipeline route that avoids large trees in wetlands to the extent
27 possible. If NWN must remove trees from category 3 wetlands during construction, NWN must,
28 in order to meet the no net loss and in-kind/in-proximity goal, replant the areas in which trees
29 were taken with appropriate trees, or plant other appropriate areas with appropriate trees to create
30 or improve the habitat types from which the trees was taken.

31
32 Category 4. NWN proposes crossing no category 4 streams and expects that project construction
33 would not directly affect category 4 streams, riparian shrub or palustrine forested wetland
34 habitats.

35
36 NWN expects that project construction would directly affect up to 0.1 acre of riparian forest, up
37 to 20 acres of conifer forest, up to 5.5 acres of deciduous forest, up to 12 acres of mixed forest,
38 up to 4 acres of early seral forest, up to 11 acres of upland scrub-shrub, up to 0.1 acre of upland
39 grassland (associated with fences), up to 200 acres of upland pasture/grasslands, up to 5.5 acres
40 of palustrine emergent wetlands and up to 0.5 acre of palustrine shrub wetlands.

41
42 Riparian Habitats NWN does not propose to cross any category 4 streams. Potential impacts to
43 category 4 riparian forest habitat are the same as those discussed for category 3 Upland Habitats.
44 NWN proposes to use the methods discussed for category 3 Upland Habitats to avoid, reduce and
45 mitigate for impact to riparian forested habitat.

46
47 Upland Habitats Potential impacts to category 4 upland habitats are the same as those identified
48 for category 3 upland habitats.

1 NWN proposes to reduce direct impacts to category 4 upland habitats by the same methods as
2 discussed for category 3 upland habitats.

3
4 Wetland Habitats Potential impacts to category 4 palustrine emergent and palustrine scrub
5 wetland habitats include those listed above for category 3 wetland habitats.

6
7 NWN proposes to reduce and mitigate for impacts to category 4 wetland habitats by using the
8 methods proposed for category 3 wetland habitats.

9
10 NWN has attempted to find a pipeline route that avoids large trees to the extent possible. If
11 NWN must remove trees from category 4 riparian or wetland habitats during construction, NWN
12 may need to replant the areas in which trees were taken with appropriate trees, or plant other
13 appropriate areas with appropriate trees, in order to meet the mitigation goal of no net loss using
14 either in- or out-of-kind replacement.

15
16 Category 5. NWN anticipates the project would affect about 0.1 acre of Category 5 habitat (non-
17 fish-bearing streams that do not flow into a fish-bearing stream).

18
19 Along the preferred alignment, NWN proposes to avoid direct impacts to category 5 streams and
20 associated riparian habitat at two category 5 stream crossings by boring under the stream (one
21 crossing) and avoiding another stream altogether. If NWN builds the pipeline along the
22 alternative corridor segments rather than along the preferred corridor segments, a different
23 stream crossing would be needed. This would be done by boring under the stream and would
24 avoid any impact to the stream. (Hayward, NWN, letter to Meehan, OOE, dated October 26,
25 2001).

26
27 Category 6. The project has a total of five Category 6 waterway crossings: four small streams
28 and one ditch. NWN anticipates that construction would directly affect no more than one acre of
29 category 6 waterways.

30
31 Stream and Riparian Habitats NWN proposes to bore under one crossing, to cross over one
32 crossing where it is in a culvert and to cross under one crossing where it is in a culvert. NWN
33 anticipates these crossing methods will avoid impact to streams and to associated riparian
34 habitat.

35
36 NWN proposes to trench across two category 6 crossings. These streams do not flow year-
37 round, have silt substrates and do not provide good habitat for fish. Neither support or have fish
38 near the crossing location. Both streams may be dry at the time NWN crosses them. NWN
39 anticipates that impacts to these streams will be short-term and minor. NWN proposes to restore
40 the construction corridor, including the stream bed and banks, to near pre-construction
41 conditions.

42
43 Upland Habitats NWN anticipates that project construction would directly affect less than 150
44 acres of buildings/pavement/barren areas, less than 30 acres of large residential lots, less than 90
45 acres of nurseries and orchards and less than 95 acres of cultivated row crops.

46
47 NWN proposes to limit impacts to the construction corridor by using BMPs to control erosion
48 and soil movement during construction. NWN proposes to mitigate for the direct impacts to

1 these habitat types by restoring these areas to near pre-construction conditions, except that
2 certain orchard trees might not be allowed to be replanted near the pipeline.

3 4 Potential Impacts from Operation and Mitigation during Operation

5 NWN will acquire a permanent Maintenance Easement along the entire length of the pipeline.
6 NWN anticipates this will typically be 40 feet wide in areas where it is not adjacent to a public
7 right-of-way or the existing 16-inch diameter South Mist Pipeline. Where the pipeline is
8 adjacent to a public right-of-way, NWN anticipates its easement will be 20 feet wide (the
9 remainder of the 40 feet would be within the public right-of-way.) Where the pipeline is
10 adjacent to the existing South Mist Pipeline, NWN anticipates it will enlarge its existing 40-foot-
11 wide easement for that pipeline to a total width of 50 feet (ten feet between the two pipelines and
12 20 feet on either side of each pipeline). Where the new pipeline is not adjacent to a public right-
13 of-way or another existing easement, it will be located approximately in the center of the
14 Maintenance Easement.

15
16 After construction, NWN will restore the construction corridor to near its pre-construction
17 conditions and uses, except that NWN will prevent large trees, or other vegetation with
18 potentially damaging roots, from growing close to the pipeline. In non-farm areas where NWN
19 needs to control vegetation growth within the Maintenance Easement, NWN proposes to control
20 vegetation by mechanical cutting and selective herbicide application. Both would be performed
21 by NWN right-of-way crews. NWN proposed to only use mechanical cutting near streams and
22 wetlands. NWN proposes to use herbicide application only in backcountry, upland areas on
23 commercial timber lands near northern end of the pipeline route (Bacona blowdown station) in
24 areas where wetlands and streams are not present. (Hayward, NWN, letter to Meehan, OOE,
25 dated December 24, 2001).

26
27 During operation, NWN anticipates that activity along the pipeline would include annual leakage
28 inspections and periodic maintenance of cathodic protection equipment, valves and telemetry
29 equipment. These activities pose minimal potential to adversely affect fish and wildlife habitat.

30
31 NWN also anticipates annual inspections of all stream crossings (and other areas as appropriate)
32 to ensure that water flow (or other conditions) does not expose the pipeline. NWN would
33 perform maintenance on the pipeline to rebury it if necessary. This has potential to cause short-
34 term and limited disturbance to fish and wildlife habitat. In this event, OOE recommends that the
35 Council impose a condition requiring NWN to notify OOE, DSL and ODFW at least 15 days
36 prior to such repair or reburial activity and provide a detailed description of the repairs proposed.

37 38 Potential Impacts during Retirement and Mitigation during Retirement

39 NWN anticipates that if and when the pipeline is retired, it would leave the pipeline
40 underground. Before retiring (or abandoning) the pipeline, NWN would inspect it and remove
41 any hazardous material from within the pipeline. NWN would purge the pipeline with nitrogen.
42 NWN would cut and cap the pipeline at each end and cut and plug the pipeline at intervals.
43 NWN would remove all aboveground portions of the pipeline.

44
45 OOE recommends that the Council find that these retirement activities are not likely to cause a
46 significant impact to fish or wildlife habitat.

47 48 Recommended Conditions

1 The conditions recommended pursuant to this standard are listed in section VI of this order.
2 They are organized by construction sequence as an aid to the reader. However, this organization
3 does not limit the applicability of any condition. For the purpose of these conditions, pre-
4 construction generally refers to the period before any ground-disturbing activity begins (such as
5 tree-removal, vegetation clearing or grading). Construction refers to the period that begins with
6 ground-disturbing activity until about the date of commercial operation. Post-construction
7 includes those restoration and related activities that take place after the project is placed in
8 service, but are not part of routine operation. Operation includes activities that take place to
9 inspect, maintain, and if needed, repair, the pipeline and its right-of-way during the period the
10 project is in service. Where a condition requires that NWN shall take a certain action
11 responsibility to comply includes any of NWN employees, contractors and other agents. NWN
12 shall have full responsibility for requiring and assuring that its employees, contractors and other
13 agents comply with the conditions in this order.

14
15 Findings of Consistency with Fish and Wildlife Habitat Mitigation Goals and Standards

16
17 The Office of Energy recommends that the Council make the following findings regarding
18 consistency with ODFW's Fish and Wildlife Habitat Mitigation Policy:

19
20 Category 1. NWN's proposal is consistent with the mitigation goals and standards because
21 NWN proposes, and the site certificate will require NWN to avoid all Category 1 habitat within
22 the entire 200 foot wide corridor. NWN will implement a bentonite contingency plan to mitigate
23 fully for any temporary effects of incursions of bentonite during HDD boring.

24
25 Category 2. NWN's proposal is consistent with the mitigation goals and standards because
26 NWN proposes, and the site certificate will require NWN to avoid, minimize and rectify impacts
27 to category 2 habitat by repairing, rehabilitating, and restoring Category 2 habitat to near pre-
28 project conditions within the entire 200 foot wide corridor. NWN will restore stream beds and
29 banks to near pre-project conditions and will replant riparian vegetation. NWN will restore
30 wetlands to near pre-project conditions. If NWN removes riparian or wetland trees or shrubs,
31 NWN will replant appropriate species at or near locations where removed, and at the required
32 ratios. The no-net-loss standard is achieved by in-kind and in-proximity replacement. NWN
33 will provide a net benefit by, among other things, adding woody debris to wetlands and streams.
34 The site certificate will require NWN to monitor all Category 2 habitat sites after construction.
35 If monitoring indicates that the no net loss and net benefit goal is not attained, the site certificate
36 will require that NWN take additional mitigation actions, in consultation with appropriate
37 agencies, to achieve the no net loss and net benefit goal.

38
39 Category 3. NWN's proposal is consistent with the mitigation goals and standards because NWN
40 proposes, and the site certificate will require NWN to rectify impacts by repairing, restoring or
41 rehabilitating Category 3 habitats to near pre-project conditions within the entire 200 foot wide
42 corridor. NWN will restore stream beds and banks to near pre-project conditions and will replant
43 riparian vegetation. NWN will restore wetlands and permanent ponds (PP3) to near pre-project
44 conditions. NWN will restore deciduous forest (DF3) and conifer forest (CF3) to near pre-
45 project conditions. If NWN removes riparian, wetland or deciduous forest trees or shrubs, NWN
46 will replant appropriate native species at or near locations where removed and at the required
47 ratios. This will achieve no net loss by in-kind and in-proximity replacement. The site
48 certificate will require NWN to monitor Category 3 habitat sites after construction. If
49 monitoring indicates that the no net loss goal is not attained, the site certificate will require that

1 NWN take appropriate actions, in consultation with appropriate agencies, to achieve the no net
2 loss goal.

3
4 Category 4. NWN's proposal is consistent with the mitigation goals and standards because NWN
5 proposes, and the site certificate will require NWN to restore Category 4 habitats to acceptable
6 conditions within the entire 200 foot wide corridor. NWN will restore stream beds and banks to
7 near pre-project conditions and will replant riparian vegetation. NWN will restore wetlands to
8 near pre-project conditions. If NWN removes riparian or wetland trees or shrubs, NWN will
9 replant appropriate species at or near locations where removed, and at the required ratios. NWN
10 will restore upland habitats (forests, shrublands, grasslands) to near pre-project contours. NWN
11 will plant disturbed upland areas with seed mix appropriate for the habitat/land use and
12 acceptable to the land owner. In forested habitats, NWN will leave large woody debris in the
13 construction corridor (with landowner consent). This will achieve no net loss by in-kind or out-
14 of-kind and in-proximity replacement. The site certificate will require NWN to monitor at least
15 some Category 4 habitat sites after construction. If monitoring indicates that the no net loss goal
16 is not attained, the site certificate will require that NWN take appropriate actions, in consultation
17 with appropriate agencies, to achieve the no net loss goal.

18
19 Category 5. NWN's proposal is consistent with the mitigation goals and standards because the
20 only Category 5 habitat in the 200 foot-wide corridor are low quality streams that do not support
21 fish and do not flow into streams that do support fish. NWN proposes to avoid all Category 5
22 habitat. If NWN must cross this habitat, the site certificate will require that NWN use
23 appropriate construction methods to limit adverse impact and restoration measures to restore the
24 stream bed, banks and associated riparian area to an improved condition that provides a benefit
25 in habitat quantity or quality.

26
27 Category 6. NWN's proposal is consistent with the mitigation goals and standards because NWN
28 proposes, and the site certificate will require NWN to use construction methods that confine
29 impacts to the construction corridor and to restore the construction corridor, including stream
30 beds and banks, to near pre-construction conditions.

31 32 **Conclusion**

33 The Office recommends that the Council find that the measures described generally in this
34 discussion and listed at section VI of this order can reduce the duration, areal extent and severity
35 of potential adverse impacts to fish and wildlife habitats to levels that are consistent with the
36 intent of the ODFW mitigation goals and standards, OAR 635-415-0025, the Council's Fish and
37 Wildlife Habitat standard, OAR 345-022-0060, and are consistent with Executive Order 99-01 to
38 restore salmonids and their habitat.

39
40 Subject to these conditions, OOE recommends that the Council find that the proposed South Mist
41 Pipeline Extension complies with OAR 345-022-0060.

1 For these reasons, construction, operation, maintenance and retirement of the proposed pipeline
2 is not likely to cause a significant reduction in the likelihood of survival or recovery of the
3 species.

4 Wildlife

5 NWN reviewed information obtained from the USFWS, NMFS and ONHP and developed a list
6 of federal and state threatened, endangered and candidate fish and wildlife species that could
7 occur within a five-mile distance (10-mile-wide total distance) of the proposed pipeline.
8
9

10 The list includes six species. The Aleutian Canada goose (*Branta canadensis leucopareia*) is
11 listed under state law as endangered. The bald eagle (*Haliaeetus luecocephalus*) and northern
12 spotted owl (*Strix occidentalis caurina*) are listed under state law as threatened. The Upper
13 Willamette River steelhead (*Oncorhynchus mykiss*) and the Upper Willamette River chinook
14 (*Oncorhynchus tshawytscha*) are listed as threatened under federal law. The Oregon spotted frog
15 (*Rana pretiosa*) is listed as critical under state law and as a candidate for listing under federal
16 law.

17
18 NWN conducted field surveys for these species between June 5 and July 25, 2000. Field surveys
19 were typically conducted within a minimum of 200 feet on either side of the 80-foot wide
20 proposed construction corridor, for a total width of 480 feet. Where scrub-shrub, oak upland,
21 riparian, stream, wetland or open water habitats were present, the search area was expanded to a
22 minimum of 300 feet on either side of the proposed construction corridor, for a total width of 680
23 feet. In cultivated or developed areas with low habitat value, the survey area was reduced to 100
24 feet on either side of the proposed construction corridor. Field surveys for nesting great blue
25 herons and raptors extended one-quarter mile from either side of the proposed pipeline corridor.
26

27 Aleutian Canada Goose. Aleutian Canada geese nest in Alaska and occur in the Willamette
28 Valley during winter. Winter habitat is typically pastures, croplands, grasslands, floodplains and
29 emergent wetlands. These habitats are common to abundant in the project area. Pipeline
30 construction would occur primarily during spring, summer and fall when birds are not present.
31 NWN will place the pipeline underground and will restore the construction corridor to near pre-
32 project conditions such that there is no net loss of either essential or important habitat for this
33 species.

34
35 For these reasons, construction of the proposed pipeline is not likely to cause a significant
36 reduction in the likelihood of survival or recovery of the species
37

38 Bald Eagle. Bald eagles nest and forage along fish-bearing streams throughout the Willamette
39 Valley from late winter to early summer. This species typically constructs large stick nests in
40 tall trees near water bodies. Bald eagles feed primarily on fish, waterfowl, wading birds and
41 carrion. The limiting factor for this species is most likely the availability of suitable nesting and
42 foraging habitat.

43
44 NWN found four records of nesting or roosting bald eagles within five miles of the proposed
45 construction corridor. The closest of these are about one mile from the preferred corridor. NWN
46 found no bald eagle nest sites within the area covered by field surveys; nesting habitat appears
47 somewhat limited within one-half mile of the preferred corridor.
48

1 Project construction would not remove any medium or large trees in riparian areas. Project
2 construction would avoid medium and large trees in upland areas. If construction cannot avoid a
3 medium or large tree with potential to support bald eagles, a qualified biologist will survey the
4 affected area for evidence of bald eagle use. Trees that are determined to provide nesting or
5 roosting habitat for bald eagles will be identified and NWN will avoid them during construction.
6 In addition, NWN will schedule construction within one mile of documented or newly
7 discovered nest sites to avoid the critical breeding and rearing period (January 1 to August 31)
8 for this species.
9

10 For these reasons, construction of the project is not likely to cause a significant reduction in the
11 likelihood of survival or recovery of the species.
12

13 Northern Spotted Owl. Northern spotted owls nest primarily in heavily forested areas, in stands
14 comprised of mixed species of mature and old-growth forest that are typically in mountainous
15 areas. They are mostly nocturnal. Adults inhabit a territory year-round and are long-lived.
16 Young disperse from their natal territory in September and October. ODFW SAR
17

18 The northern portion of the proposed corridor (Washington County) is within the historic range
19 of the northern spotted owl. Within this area, NWN found two historic records (1978) of this
20 species within five miles of the proposed project. Both were in the Dairy Creek Valley area.
21 Spotted owl surveys conducted by the BLM in 1991 concluded that both these sites had been
22 abandoned. NWN found no spotted owls or potential nest sites within the area surveyed for the
23 proposed pipeline.
24

25 Much of the proposed corridor lies outside the range of the northern spotted owl. The habitat
26 that is within the species' range (the northern part of the corridor) is a mixture of private and
27 federal timberland, which has been extensively logged and consists primarily of second- and
28 third-growth forests. Most of the proposed corridor in this area is within and next to the right-of-
29 way for the existing 16-inch NWN gas pipeline or is adjacent to Dairy Creek Road.
30 Construction would remove a small amount of this forested habitat, none of which is likely to
31 support spotted owls.
32

33 For these reasons, construction of the project is not likely to cause a significant reduction in the
34 likelihood of survival or recovery of the species.
35

36 NWN will acquire a permanent Maintenance Easement along the entire length of the pipeline.
37 NWN anticipates this will typically be 40 feet wide in areas where it is not adjacent to a public
38 right-of-way. Where the pipeline is adjacent to a public right-of-way, NWN anticipates its
39 easement will be 20 feet wide. The pipeline will be located approximately in the center of the
40 Maintenance Easement.
41

42 NWN will restore the Maintenance Easement to near its pre-construction conditions and uses,
43 except that NWN will prevent large trees or other vegetation with potentially damaging roots
44 from growing close to the pipeline. NWN proposes to control vegetation within the Maintenance
45 Easement by mechanical cutting and selective herbicide application. Both would be performed
46 by NWN right-of-way crews. NWN proposed to only use mechanical cutting near streams and
47 wetlands. NWN proposes to use herbicide application only in backcountry, upland areas on
48 commercial timber lands near northern end of the pipeline route (Bacona blowdown station) in

1 areas where wetlands and streams are not present. (Hayward, NWN, letter to Meehan, OOE,
2 dated December 24, 2001).

3
4 During operation, NWN anticipates that activity along the pipeline would include annual leakage
5 inspections and periodic maintenance of cathodic protection equipment, valves and telemetry
6 equipment. These activities pose minimal potential to adversely affect fish and wildlife habitat.

7
8 NWN also anticipates annual inspections of all stream crossings (and other areas as appropriate)
9 to ensure that water flow (or other conditions) does not expose the pipeline. NWN would
10 perform maintenance on the pipeline to rebury it if necessary. This has potential to cause short-
11 term and limited disturbance to fish and wildlife habitat. NWN proposes to avoid, reduce or
12 mitigate for these impacts by complying with applicable requirements of the Oregon Fish and
13 Wildlife, Division of State Lands and U.S. Army Corps of Engineers. (Hayward, NWN, letter to
14 Meehan, OOE, dated December 24, 2001).

15
16 NWN anticipates that if and when the pipeline is retired, it would leave the pipeline
17 underground. Before retiring (or abandoning) the pipeline, NWN would inspect it and remove
18 any hazardous material from within the pipeline. NWN would purge the pipeline with nitrogen.
19 NWN would cut and cap the pipeline at each end and cut and plug the pipeline at intervals.
20 NWN would remove all aboveground portions of the pipeline.

21
22 None of these activities are likely to cause a significant reduction in the likelihood of survival or
23 recovery of any of the above listed species.

24
25 For these reasons, operation, maintenance and retirement of the project is not likely to cause a
26 significant reduction in the likelihood of survival or recovery of the Aleutian Canada goose, bald
27 eagle or northern spotted owl or their habitat.

28
29 The recommended conditions pursuant to this standard are listed at section VI of this order.

30 31 **Conclusions**

32 The Office recommends that the Council find that no Oregon Department of Agriculture
33 protection and conservation program applies and that the design, construction, operation and
34 retirement of the proposed facility, taking into account mitigation and subject to the conditions
35 stated in this order, is not likely to cause a significant reduction in the likelihood of survival or
36 recovery of any state-listed threatened or endangered species.

37 38 39 **9. OAR 345-022-0080 Scenic and Aesthetic Values**

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

44 45 **Discussion**

46 In the Project Order, OOE defined the analysis area for this standard as the area within one mile
47 of the Preferred Corridor and Alternate Corridor Segments. Jurisdictions within the analysis area
48 include Washington, Clackamas, and Marion Counties and the cities of Sherwood, North Plains,
49 Hillsboro, Cornelius, Wilsonville, Barlow, Canby, and Aurora.

1
2 General Description of Analysis Area

3 The Project is located in Washington, Clackamas, and Marion Counties. The Project area is
4 located primarily within valley and lowland areas. The typical elevation along the pipeline
5 corridor is about 100 to 200 feet above sea level. The valley floor and lowland areas are
6 typically bounded by ridges rising to elevations of approximately 1,000 to 1,500 feet above sea
7 level. These ridges are forested with second-growth fir and checker-boarded with clear-cutting.
8 With several minor exceptions, all of the surface lands within the analysis area are in private
9 ownership. The lands along the valley floor and lowland areas are primarily dedicated to
10 agricultural use. In the northerly portion of the Project in Washington County, portions of the
11 analysis area above the valley floor are largely dedicated to timber production. Many of the land
12 areas are also in rural residential use.

13
14 Description of Above-Ground Facilities

15 The SMPE will be buried and therefore not visible from any portion of the analysis area or
16 beyond. However, the pipeline will include several above-ground isolation valve stations,
17 inspection stations (“pig stations”) and a minor expansion proposed for the Molalla Gate Station
18 at the pipeline terminus.

19
20 *Isolation Valve Stations*

21 The facility includes 11 isolation valve stations, including the two isolation valves at the
22 beginning and terminus of the Project. The valve stations will be located approximately seven
23 miles apart. Isolation valves can be operated both manually and automatically, to close isolated
24 segments of the pipeline in response to maintenance and safety needs. In addition to the valve
25 stations at the beginning and terminus of the Project, three of the isolation valve stations will be
26 visible above the ground surface. These will visible be at the following general locations: (1) at
27 the tie-in intersection with the 16-inch South Mist Feeder line in Washington County, along
28 Mountindale Road, north of the proposed Sunset Highway 26 crossing; (2) at the tie-in with the
29 Hillsboro Feeder line, west of Hillsboro; and (3) at the tie-in with the Newberg Feeder line,
30 southwest of Sherwood, also in Washington County. A future aboveground valve station that is
31 not included in this Application is planned near the Aurora Airport, in Marion County. Final
32 locations for the valve stations will be determined during the final engineering and design phase.

33
34 The three new aboveground isolation valves will consist of a pipe structure and valve standing
35 approximately four to five feet in height, typically enclosed in a metal box. The aboveground
36 isolation valve stations will occupy an area of approximately 30 by 30 feet or less. They will be
37 enclosed and fully screened for security purposes by a 7-foot-tall fence. Therefore, the fence is
38 the only portion of the aboveground facility that will be visible to members of the public. The
39 six remaining isolation valves will be entirely underground. The underground valve locations
40 are protected by a 10-by-10-foot steel frame, flush with the ground, with a metal cover. In
41 locations near public rights-of-way or other locations where motor vehicles could drive over the
42 valve covers, below-ground isolation valves will typically have a 30-inch-long post with a four-
43 to six-inch diameter protruding from the ground level marking their locations. The aboveground
44 post will typically not be located with below-ground isolation valves in agricultural fields. These
45 locations will be marked on the surface of the cover.

46
47 *“Pig” Stations*

48 The SMPE is designed to be "pigged" with a "smart pig." Smart pigs are devices that fill the full
49 diameter of the pipeline and are pushed through the interior of the pipeline, propelled by the

1 pipeline pressure. They are inserted into sections of the pipeline that can be isolated from the
2 rest of the pipeline. Smart pigs have sensors that test and measure the thickness of the pipeline
3 wall and detect anomalies, dents, and reductions in the wall thickness. Smart pigs are pushed
4 through the pipeline to a "receiving barrel."
5

6 The pig stations require pig launchers and pig receivers. These components are above-ground,
7 so that the pig can be loaded into and removed from the pipeline while it is under pressure.
8 NWN proposes a minimum of three pig stations: (1) the Bacona Station in Washington County
9 has an existing station, which will be expanded; (2) a pig station will be installed southwest of
10 Sherwood in Washington County, where the proposed pipeline will tie into the Newberg Feeder
11 line; and (3) the third pig station will be at the terminus of the pipeline, at the Molalla Gate
12 Station, in Clackamas County. The pig stations, except the Molalla Gate Station facility, will be
13 approximately four to five feet in height, and will be composed of aboveground pipe and related
14 equipment. The pig station site will be approximately 75 feet by 100 feet in size, enclosed by a
15 7-foot-tall fence. For security reasons, the pig stations will be fenced and the aboveground
16 valves will be locked in their normal operating positions.
17

18 *Molalla Gate Station Expansion*

19 The SMPE will tie into the interstate pipeline transmission system at the Molalla Gate Station.
20 The existing Molalla Gate Station is composed of two adjacent properties, one owned by the
21 Williams Gas Pipeline Company ("Williams"), and the other owned by NWN. The existing
22 Williams facility is approximately 100 feet by 100 feet in size, and the NWN facility is
23 approximately 40 feet by 50 feet in size. NWN will expand its facility to an area of
24 approximately 50 feet by 100 feet. The facility will consist of a pipe structure approximately 10
25 to 12 feet at its highest vertical elevation, also enclosed by a 7-foot-tall screening fence.
26

27 Significant Scenic and Aesthetic Values Within the Analysis Area

28 Under OAR 345-022-0080, the Council considers impacts to "scenic and aesthetic values
29 identified as significant or important in applicable federal land management plans or in local land
30 use plans in the analysis area."
31

32 **A. Federal Lands**

33 The only federally owned or controlled surface land in the vicinity of the Preferred Corridor and
34 alternate corridor segments is the Tualatin River National Wildlife Refuge. There is no federal
35 land management plan for this refuge, and existing federal documents do not identify any
36 important or significant scenic and aesthetic values at this refuge. (*See* ASC, Appendix K-7.)
37 Moreover, NWN does not propose above-ground facilities near the Refuge.
38

39 Federal land administered by the Bureau of Land Management ("BLM") is located in portions of
40 Washington County traversed by the Preferred Corridor. This land is managed for timber
41 production under the Northwest Forest Plan and consequently has a "Visual Resource
42 Management" designation of "Category IV", the lowest category, with one exception (Big
43 Canyon) discussed below. This land does not contain any federally identified scenic or aesthetic
44 resources within the analysis area or within sight distance of the SMPE. No river in the analysis
45 area has been identified by the federal government as a "Wild and Scenic River."
46

47 **B. Washington County**

48 Washington County's Comprehensive Plan includes policies in the "Scenic Resources"
49 Chapter 13, pages 2.20-2.21, for the protection and enhancement of scenic views, routes, and

1 features. While the Plan calls for adoption of procedures in the Community Development Code
2 to review development actions that may conflict with scenic resources and to require mitigation
3 of impacts, the Community Development Code does not include any provisions regulating scenic
4 impacts or addressing mitigation. The policy language in the Plan does not direct any specific
5 procedures or measures for the review and mitigation of scenic or aesthetic impacts.

6
7 The Plan identifies several "scenic views" near the analysis area (Figure R-1, Sheet 1). These
8 include a scenic view from the vicinity of Red Shoe Hill, located northwest of Meecham Corner.
9 This scenic resource is outside the analysis area. The Preferred Corridor and Alternate Corridor
10 Segments will not be visible from this location because the topography prevents views directly
11 down into the valley. This designated scenic area is remote from the Project and will not be
12 impacted by the construction phase activity or the permanent facility placement.

13
14 The Plan also identifies a "scenic feature" at Big Canyon, in the east fork of Dairy Creek
15 drainage, west of Dairy Creek Road and south of Meecham Corner. Big Canyon is a steep,
16 heavily forested drainage tributary to the east fork of Dairy Creek. It is primarily BLM land.
17 This scenic resource is outside the analysis area. The Plan states that the BLM has designated
18 Big Canyon as a "Natural Area" but BLM staff informed NWN in August 1998 that the
19 designation has been rescinded. There is no public access to Big Canyon. Even if the pipeline
20 were an aboveground facility, it would not be visible from Big Canyon because of the extremely
21 dense vegetation.

22
23 The Plan identifies Dairy Creek Road as a "Scenic Route" with good views of a "narrow farm
24 valley and forested canyon with stream." The existing pipeline follows Dairy Creek Road over
25 significant stretches but is not visible because it is buried and no surface facilities are related to
26 this portion of the pipeline. The SMPE is proposed to be installed within or adjacent to NWN's
27 existing easement, and will therefore follow the same route. Similar to the existing pipeline, the
28 SMPE will not be visible, as it will be buried, with no surface facilities proposed in this
29 location.¹⁶ Under the Council's Land Use and Soil Protection Standards, OOE will recommend
30 conditions requiring NWN to restore the right of way to its original condition.

31
32 Finally, the Plan designated Sunset Highway 26 as a "scenic route" for its many vistas of the
33 Tualatin Valley and the Cascades. While construction activity will be visible in the vicinity of
34 the proposed pipeline Sunset Highway crossing west of North Plains, the buried pipeline will not
35 include any above-ground facilities visible from Sunset Highway.

36
37 The South Mist Pipeline Extension will not involve any aboveground facilities in the vicinity of
38 or visible from either Red Shoe Hill or Big Canyon.

39 40 **C. Clackamas County**

41 The Clackamas County Zoning and Development Ordinance ("ZDO") includes general
42 requirements for development review, including ZDO § 1002.01.A, which requires the
43 protection of natural environmental and scenic features of Clackamas County. Section
44 1002.02.C.2 states that development should be planned, designed, constructed, and maintained to
45 "[m]inimize the removal of trees and other native vegetation that stabilize hillsides * * * and
46 preserve the natural scenic character." The Council's scenic and aesthetic standard requires the

¹⁶ In written comments on the Draft Proposed Order, CPO#8 stated that the ASC describes a potential above ground valve location at Corey Road, near Dairy Creek. OOE recommends that this not be found significant. The footprint is relatively small and would not significantly change the overall scenic character of Dairy Creek.

1 identification of scenic and aesthetic values identified as significant or important in the
2 applicable plans.

3
4 The Clackamas County Comprehensive Plan establishes a scenic road system with the goal of
5 protecting recreation values, scenic features, and open character along the roadway. The
6 Clackamas County Comprehensive Plan includes eight policies to accomplish this goal:
7 (1) strict access control on new development; (2) wide shoulders for bicyclists and pedestrians;
8 (3) turnouts for viewpoints and recreational needs; (4) design review requiring visual
9 characteristics and signing appropriate to the setting; (5) setbacks and buffer zones for buildings;
10 (6) landscaping requirements for parking areas; (7) vegetative buffers on frontage roads; and
11 (8) underground placement of utilities.

12
13 Maps V-3 and V-4 of the Clackamas County Comprehensive Plan locate six scenic boulevards
14 and 24 scenic roads in Clackamas County (Figure R-1, Sheet 2); however, no description of the
15 scenic values is provided. All six of the scenic boulevards and 22 of the scenic roads are located
16 more than one mile from the proposed corridor and, therefore, are not analyzed in Exhibit R.
17 The two scenic roads located within the analysis area are (1) Wilsonville Road and (2) Canby-
18 Marquam Highway from Canby to Highway 211.

19
20 1. Wilsonville Road

21 The Preferred Corridor intersects the scenic designation of Wilsonville Road approximately 1½
22 miles southwest of the city of Wilsonville. This portion of Wilsonville Road travels through a
23 rural area just north of the Willamette River. The area is characterized by farm uses and
24 occasional residences, and has little topographic relief.

25
26 At this location, the pipeline would be installed underground and would not be visible during the
27 operational life of the facility. An isolation valve will likely be proposed just south of
28 Wilsonville Road; however, this isolation valve will be installed underground. Since no above
29 round structures are proposed in this area, scenic qualities of Wilsonville Road would not be
30 impacted by operation of the facility.

31
32 Scenic qualities of Wilsonville Road could be impacted during construction of the facility.
33 However, visual impacts during the construction process would be both minimal and short term,
34 and are comparable to those of substantial road repair activities. The construction process will
35 include ditch-digging, pipe-laying, and staging for a HDD. The staging area for the HDD will be
36 located south of the Willamette River and will include excavation spoil piles and heavy
37 equipment, as well as a pipeline "laydown" area. Two bore pads will be located near Wilsonville
38 Road; one will be approximately 100 feet south of the road and the other approximately 700 feet
39 north of the road. The magnitude of visual impacts associate with HDD operations should be
40 contrasted by the fact that the HDD boring method will eliminate the need for trenching over
41 many miles of the pipeline corridor, consequently minimizing the visual impacts of trenching
42 operations. Given the short duration of the construction activities, visual impacts would not be
43 significant.

44
45 2. Canby-Marquam Highway from Canby to Highway 211

46 The Preferred Corridor intersects the scenic designation of the Canby-Marquam Highway
47 approximately 3½ miles south of the cities of Barlow and Canby. This portion of the Canby-
48 Marquam Highway travels through a rural area characterized by farm uses and low-density rural
49 housing. The area has little topographic relief and is typified by low-lying agricultural fields.

1
2 At this location, the pipeline would be installed underground and would not be visible during the
3 operational life of the facility. Further, there are no isolation valves or other surface features
4 proposed near the scenic road. The nearest surface feature, the Molalla Gate Station, is located
5 approximately 1½ miles from the Canby-Marquam Highway. For these reasons, scenic qualities
6 of the Canby-Marquam Highway would not be impacted by operation of the facility.
7

8 Scenic qualities of the Canby-Marquam Highway could be impacted during construction of the
9 facility. However, visual impacts during the construction process would be both minimal and
10 short term. The construction process will include ditch-digging and pipe-laying activities, which
11 will be visible from the Canby-Marquam Highway for a short time period. However, ditch-
12 digging activities would result in limited tree and vegetation removal because pipeline
13 installation will occur within and adjacent to the road right-of-way. Given the short duration of
14 the construction, visual impacts would not be significant. As noted above, conditions applicable
15 under the Council's Soil and Land Use standards will require NWN to restore the right of way to
16 its original condition.
17

18 **D. Marion County**

19 While Marion County's Comprehensive Plan, pages 78-79, identifies scenic areas and values for
20 protection, none of the identified scenic resource areas are within the analysis area.
21

22 **E. City of Sherwood**

23 The Sherwood Comprehensive Plan identifies one scenic resource and four scenic views in
24 Table V-I. The scenic resource is labeled "TSGA Scenic Resource" and is located within 2S133.
25 The four scenic views are not labeled or described in any way, but are located as follows:
26 2S129B: 300; 2S130A: 1601; 2S130D: 2201; and 2S132AD. No map is referenced that further
27 locates these views, and no description of the scenic values is provided. The current tax lot maps
28 show that tax lots 300 (2S129B), 1601 (2S130A), and 2201 (2S130D) have all been cancelled.
29 In short, there is no assessment of the significance of the scenic views/resource, and they cannot
30 be located with any degree of accuracy. Lastly, there are no goals or policies provided in the
31 Sherwood Comprehensive Plan relating to scenic resources, and there is no zoning code to
32 protect scenic resource.
33

34 **F. City of North Plains**

35 Section 15.02.030 of the city of North Plains Comprehensive Plan Ordinance addresses "Scenic
36 and Historic Areas and Natural Resources." This section states that, based on the resource
37 inventory, the city of North Plains contains no "outstanding views and sites".
38

39 **G. City of Hillsboro**

40 Section 6 of the city of Hillsboro Comprehensive Plan addresses "open space, scenic and historic
41 sites." However, none of the goals refer to scenic resources, and no maps or text identify
42 significant scenic resources. The entire pipeline installation in the Hillsboro area will be via
43 subsurface HDD boring.
44 .

45 **H. City of Cornelius**

46 The Cornelius Comprehensive Plan does not identify any significant scenic or aesthetic resources
47 in the city of Cornelius. The Cornelius Zoning and Development Code does not provide any
48 provisions to protect scenic resources.
49

1 **I. City of Wilsonville**

2 Page 76 of the city of Wilsonville Comprehensive Plan identifies Mount Hood, Boeckman
3 Creek, numerous stands of trees throughout the city, the Willamette River from the water and its
4 banks, and the I-5 Boone bridge as "general scenic views." However, the Comprehensive Plan
5 also specifies that "many of these open spaces also provide scenic views, although no significant
6 site-specific view points have been identified."
7

8 **J. City of Canby**

9 Page 72 of the city of Canby Comprehensive Plan specifies that "scenic aspects of the Canby
10 area are very general in nature, as opposed to being able to identify specific sites." The
11 Comprehensive Plan does not identify specific significant scenic resources.
12

13 **K. City of Aurora**

14 Page 26 of the city of Aurora Comprehensive Land Use Plan states that within the proposed
15 Urban Growth Boundary ("UGB"), there are no outstanding scenic views or sites and no
16 state/federally designated wild or scenic waterways. The Comprehensive Plan does not identify
17 specific scenic resources.
18

19 Impacts on Scenic Resources

20 *Operational Impacts*

21 The pipeline will be located underground and thus will not be visible from any scenic site in
22 Washington, Clackamas, or Marion Counties. The right of way will be restored to its original
23 condition under the Council's Soil and Land Use standards. The only surface facilities
24 associated with the Project include three above-ground valve stations, the proposed expansion of
25 the pigging facilities described above, and the expansion of the Molalla Gate Station facility, also
26 discussed above. None of the above-ground facilities are located near designated scenic
27 resources described above. The above-ground facilities will be confined to relatively small
28 ground areas, and the only visible features along the pipeline corridor will be the seven-foot
29 security screening fences and the posts identifying several of the below-ground isolation valves.
30 The visual impact will not be significant because of the relatively small footprint and because the
31 above-ground facilities are proposed in locations that already have either existing pipeline related
32 structures (such as the existing Molalla Gate Station and the Bacona Blowdown station) or other
33 nearby residential development.
34

35 *Construction Phase Visual Impacts*

36 During construction, NWN's ditch-digging, boring, and pipe-laying equipment and operations
37 will be visible along the entire Preferred Corridor and Alternate Corridor Segments for a limited
38 period of time. Additionally, pipe and other equipment will be stored temporarily at locations to
39 be determined during the final engineering phase. During construction, vegetation will be
40 removed, including trees within the construction easement area. Vegetation will be restored
41 under conditions related to the Council's Habitat and Soil standards. Excavation spoil piles will
42 be temporarily placed within the 80-foot construction easement area.
43

44 Visual and scenic impacts will be similar to those of substantial road repair activities. In
45 locations where HDD installation will occur, the construction phase impacts will be somewhat
46 greater, given the size of the equipment, the resulting excavation spoil piles, and the need for
47 pipeline laydown areas.
48

1 In short, scenic and aesthetic impacts will be primarily associated with construction. These
2 impacts will be temporary. In the agricultural zones NWN will be required to restore the site to
3 its original condition under the Council's Land Use and Soil standards. In residential zones,
4 visual impacts of construction will be similar to other construction associated with roads and
5 residential development. In forested areas, visual impacts will be lessened because the landscape
6 in these areas shows numerous marks of development, including clear-cuttings and rural
7 residential development along the roadways.

8 9 **Conclusion**

10 The Office recommends that the Council find that NWN meets the scenic and aesthetic values
11 standard, OAR 345-022-0080. Because conditions for restoration along the right-of-way are
12 proposed under the Habitat and Soil standards, the Office does not recommend any additional
13 conditions under this standard.

14 15 **10. OAR 345-022-0090 Historic, Cultural and Archaeological Resources**

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

- 19 (1) Historic, cultural or archaeological resources that have been listed on, or would likely be
20 listed on the National Register of Historic Places;
- 21 (2) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or
22 archaeological sites, as defined in ORS 358.905(1)(c); and
- 23 (3) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c).

24 25 **Discussion**

26 The analysis area for historic, cultural and archaeological resources is the area within the
27 proposed corridor.

28
29 NWN engaged URS Corporation to assist with the evaluation of historic, cultural and
30 archaeological resources in the analysis area. URS first conducted a record search and literature
31 review at the State Historic Preservation Office. This research revealed that little of the proposed
32 pipeline corridor had been examined and few archaeological sites had been identified. Some
33 work was conducted north of the corridor for earlier phases of the Mist Pipeline construction and
34 expansion. The northern part of the analysis area overlaps the area in which this earlier work
35 was performed, and three of the 23 archaeological sites identified in this earlier study are located
36 within the analysis area.

37
38 During its preliminary research, URS reviewed historic maps from the Bureau of Land
39 Management and maps on file at the Oregon Historical Society. The maps identified areas of
40 potential historic significance, but few actual structures or features were identified in the analysis
41 area.

42
43 URS conducted an archaeological survey of the analysis area in 2000. During the survey, URS
44 identified five archaeological sites and 13 isolated finds within the analysis area. Combined with
45 the 3 archaeological sites identified in the earlier Mist Pipeline construction and expansion
46 survey, URS has identified a total of eight archaeological sites within the analysis area. None of
47 the archaeological sites are located on public land.

1 **Potential National Register of Historic Places Sites.** For the purpose of project design and
2 determining the location of the final pipeline alignment, NWN chose to treat each of the eight
3 archaeological sites identified within the analysis area as a site eligible for listing on the National
4 Register of Historic Places (“NRHP”). NWN chose this approach with the objectives of leaving
5 each site undisturbed unless disturbance is absolutely necessary and requiring the design team to
6 treat each site equally, with impact avoidance a paramount goal in selecting the final pipeline
7 alignment. NWN proposes to evaluate any given site to determine whether it meets the criteria
8 for listing in the NRHP only if the site could not be avoided by realigning the pipeline.
9

10 **Archaeological Objects and Archaeological Sites.** An "archaeological site", as defined in ORS
11 358.905(1)(c), is a location in Oregon that contains a group of archaeological objects and their
12 contextual associations. An "archaeological object", as defined in ORS 358.905(1)(a), is an
13 individual object that is at least 75 years old and meets several other criteria. An archaeological
14 site will contain archaeological objects, but an isolated or individual archaeological object is not
15 an archaeological site.
16

17 Private Land. Within the analysis area, URS identified 13 archaeological objects, all on
18 private land. The identified archaeological objects consist of single items or small clusters of
19 historic or prehistoric materials.
20

21 URS identified the following eight archaeological sites within the analysis area, all on private
22 land:
23

- 24 • Site S-1. This site consists of the remains of a domestic structure, including a cement
25 foundation, fire brick chimney, and privy located on a small secondary alluvial
26 terrace on the south bank of Plenty Water Creek in the Dairy Creek area. The
27 existing pipeline skirts the western boundary of this site, and the proposed pipeline
28 would follow the same corridor. The site should not be disturbed by project-related
29 activities, but, given the potential for buried cultural materials in this area, URS
30 recommends that NWN monitor construction in this area.
31
- 32 • Site 35WN33. This site consists of a dispersed surface scatter of prehistoric artifacts
33 on a low terrace on the East Fork of Dairy Creek. The existing pipeline crosses the
34 west and south edges of the site, and the proposed pipeline would follow the same
35 corridor. The site should not be disturbed by project-related activities, but, URS
36 recommends that NWN monitor construction in this area.
37
- 38 • Site 35WN35. This site consists of a sparse surface scatter of prehistoric artifacts in a
39 cultivated field east of Dairy Creek Road, encompassing an area of about 5.2 acres.
40 The existing pipeline corridor bisects this site, and no cultural materials were
41 observed during construction of that pipeline. The proposed pipeline would follow
42 the same corridor, offset by 10 feet. NWN would position an archaeologist at this site
43 during construction of the proposed pipeline to ensure that no archaeological
44 materials are disturbed.
45
- 46 • Site ORWN1/35WN34. These sites consist of extensive, overlapping deposits of
47 historic and prehistoric materials located on the slopes and crest of a ridge of Dairy
48 Creek, in the vicinity of the community of Mountindale. To avoid impacts to this
49 site, the existing pipeline was rerouted to skirt the western and southern boundaries of

1 the site. The proposed pipeline would be located farther to the west and would be
2 constructed by boring under the area. Construction should not affect this site, but,
3 given the extent of historic and prehistoric materials in the area, URS recommends
4 that NWN monitor construction in this area.
5

- 6 • Site S-2. This site consists of a light scatter of basalt flakes and ground stone tools
7 located in a plowed field on the east bank of Dairy Creek. NWN would avoid
8 construction within this site.
9
- 10 • Site S-3. This site consists of a historic debris scatter located on the edge of a fruit
11 orchard and old growth woodland at the top of a small, north-facing hill overlooking
12 a creek bed, about one-half mile north of the Willamette River. NWN would avoid
13 construction within this site.
14
- 15 • Site S-4. This site consists of a possible prehistoric settlement or seasonal camp
16 locality, situated along the west bank of an oxbow lake of the Pudding River. NWN
17 would avoid construction within this site.
18
- 19 • Site S-5. This site consists of a light-density lithic scatter situated on a small bluff on
20 an alluvial terrace of the Pudding River, overlooking a small creek. The site is
21 bisected by Barlow Road and would be crossed by the proposed pipeline. NWN
22 would place the proposed pipeline within the roadway and it would be located under
23 the road within fill and previously disturbed areas. NWN would position an
24 archaeologist at this site during construction of the proposed pipeline to ensure that
25 no archaeological materials are disturbed.
26

27 Public Land. None of the archeological sites and archaeological objects identified within the
28 analysis area is located on public land.
29

30 NWN would adopt avoidance as its principal measure for protection of identified cultural
31 resources. When ground disturbing activities are being conducted in the vicinity of identified or
32 suspected cultural resources, NWN would position an archaeologist at the site to monitor the
33 work. Where avoidance is not practical, NWN would conduct a site evaluation, as approved and
34 permitted by the State Historic Preservation Officer, and it would develop and implement
35 approved mitigation and monitoring plans. NWN would treat newly discovered resources
36 similarly, with avoidance as the primary protective strategy.
37

38 **Conclusion**

39 NWN provided an evaluation of known archaeological resources in the analysis area. It has
40 conducted no subsurface testing, because the final placement of the pipeline has not been
41 determined, and opportunities to avoid impacts to identified cultural resources are still under
42 consideration. NWN would conduct subsurface testing where impacts to an archaeological site
43 from construction of the proposed pipeline could not be avoided. In such cases, NWN would
44 conduct a site evaluation subject to approval by the State Historic Preservation Officer and other
45 responsible state and federal agencies. Because the site evaluation must be specific to a
46 particular site and the particular impacts expected, NWN does not propose to conduct a detailed
47 site evaluation until it has selected the final location of the pipeline and has fully identified the
48 corresponding impacts.
49

1 In addition to positioning an archaeologist on site to monitor ground-disturbing activities near
2 identified or suspected cultural resources, NWN would give the same attention to newly-
3 discovered resources in the course of construction activities. Given this commitment, OOE
4 recommends that NWN be required to ensure that construction personnel are instructed in the
5 identification of cultural resources and that NWN be required to halt ground-disturbing activities
6 in the vicinity of a find until a qualified archaeologist can evaluate the significance of the newly-
7 discovered resources. OOE recommends the Council find that the construction, operation and
8 retirement of the proposed pipeline would not result in significant adverse impact on historic,
9 cultural and archaeological resources, with the conditions relevant to this standard set forth in
10 section VI of this Order.

11 12 **11. OAR 345-022-0100 Recreation**

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

14 “the design, construction and operation of a facility, taking into account mitigation, is not
15 likely to result in a significant adverse impact to important recreational opportunities in
16 the impact area. Factors that will be considered in judging the importance of a
17 recreational opportunity include:

- 18 (1) Any special designation or management of the location;
- 19 (2) The degree of demand;
- 20 (3) Uniqueness;
- 21 (4) Outstanding or unusual qualities;
- 22 (5) Availability or rareness; and
- 23 (6) Irreplaceability or irretrievability of the opportunity.”

24 25 **Discussion**

26 The analysis area for recreational opportunities is the area within one mile of the proposed
27 corridor. The Preferred Corridor and Alternate Corridor segments are located in Marion,
28 Clackamas, and Washington Counties.

29 30 **A. Marion County**

31 NWN did not identify any important recreational opportunities within the analysis area in
32 Marion County.

33 34 **B. Clackamas County**

35 **1. Willamette River Greenway**

36 In Clackamas County, the proposed pipeline will cross the Willamette River Greenway
37 ("Greenway"). The pipeline will not adversely affect recreational opportunities in the Greenway
38 because NWN will cross the Greenway through an underground horizontal directional drill.

39 40 **2. Wilsonville Pond**

41 Wilsonville Pond is owned by Oregon Department of Fish and Wildlife and is located
42 approximately 1.8 miles south of the town of Wilsonville within the analysis area. The pond
43 may be considered an important recreational resource due to its degree of demand, special
44 management status, and uniqueness as handicapped fishing access. The pond serves warm-water
45 fish anglers. The only potential impact upon the pond is noise from construction. The short
46 duration of the construction period, coupled with the distance from the pond (approximately
47 2,000 feet) will render the impact, if any, insignificant.

48 49 **C. Washington County**

1 None of the recreational facilities under the jurisdiction of either Washington County or the
2 Tualatin Hills Parks and Recreation District are located within the one-mile analysis area for the
3 Project. There are, however, three recreational opportunities in Washington County that may be
4 considered to be "important" by Council standards.
5

6 1. The Jackson Bottom Wildlife Area

7 The city of Hillsboro and the Unified Sewerage Agency ("USA") manage the Jackson Bottom
8 Wildlife Area ("Area"), just south of the city of Hillsboro. The area is "important" because it is
9 designated Protected Open Space and may offer unique opportunities for wildlife observation in
10 the area. The SMPE will cross a 185-acre agricultural section of the Area, which is owned by
11 USA, immediately adjacent to a wetland parcel owned by the city of Hillsboro.
12

13 The Preferred Corridor avoids the most sensitive part of the Jackson Bottom wetland complex.
14 Where it will cross wetlands, NWN plans to use an underground HDD originating near the
15 northern end of the wetland complex and emerging in the center of the agricultural field, which
16 is in a degraded state. The pipeline will be installed through the field with open trenching for
17 2,500 feet to the southeast, where another HDD will originate.
18

19 The underground bore will require an entry site approximately 150 to 200 feet long and 100 feet
20 wide on level ground. The exit site is 100 to 175 feet long and 50 to 100 feet wide. A hardstand
21 is constructed at both entrance and exit sites with fill, wooden mats, or steel plates.
22

23 The use of the HDD method of pipeline placement in these areas and the location outside of the
24 sensitive area of the Jackson Bottom complex will greatly limit, if not eliminate, adverse effects
25 on recreation. The remaining impact will be a short-term increase in noise and traffic from
26 construction activities.
27

28 Conditions recommended under the Council's Soil and Fish and Wildlife Habitat standards will
29 require that the construction site, including bore entry and exit sites, be restored to its original
30 condition as part of construction. Accordingly, the pipeline will not have a significant adverse
31 impact on this recreational opportunity.
32

33 2. Tualatin River National Wildlife Refuge

34 Two small sections of the Tualatin River National Wildlife Refuge ("Refuge"), Beef Bend and
35 Laurel Hill, lie within one mile of the Preferred Corridor, in T2S, R1W, section 18 and T2S,
36 R2W, section 14. The Refuge is important because Metro has designated it as a Protected Open
37 Space, and it is used recreationally by canoe and kayak enthusiasts for wildlife viewing.
38

39 No portion of the SMPE will be placed with the Refuge. Project construction will have an
40 indirect impact on the Refuge due to increased noise and traffic, but the construction period will
41 be of limited duration and will not involve the installation of any facility structures that will have
42 a visual impact on these areas. The Project has no direct or off-site environmental impacts that
43 could affect the Refuge. Accordingly, the design, construction, and operation of the Project will
44 not have a significant adverse impact on the Refuge.
45

46 3. The Stella Olsen Memorial Park

47 NWN has identified this part in the city of Sherwood as an important recreational opportunity
48 due to its demand as the setting of annual evening concerts known as "Music on the Green." The
49 concerts occur evenings beginning at 6 p.m. from July through August.

1
2 Construction of the SMPE will require open trenching along Middleton and Pleasant Hill Roads,
3 approximately one mile south of the park. Because of the distance from the park, the noise from
4 pipeline construction equipment may be inaudible. However, if construction will be audible
5 from the park, construction will be completed by 5:45 p.m. on concert dates.
6

7 **D. All Counties – Tualatin and Willamette Rivers**

8 Fishing opportunities are abundant in the Willamette and Tualatin Rivers. The proposed pipeline
9 will cross the Willamette once and the Tualatin three times. Each river offers recreational
10 fisheries for salmon, trout, bass, and warm water sport fish. The pipeline is not expected to
11 adversely impact fishing opportunities because the pipeline will cross the rivers by underground
12 bore, and because NWN has committed to maintain a minimum distance between the bore and
13 river bottom.
14

15 The underground boring technique requires the use of bentonite, a form of clay. The bentonite is
16 pumped through the bore hole before the pipe is pulled through. During construction of the 24-
17 inch South Mist Feeder pipeline loop from Mist to Bacona in 1999, NWN used underground
18 boring to cross several small streams. OOE observed that bentonite could leak through small
19 fractures in the ground and reach the river. However, in all cases NWN had procedures to
20 contain the bentonite, confine the leak, and restore stream clarity. Therefore the underground
21 boring is not expected to adversely affect fishing in these rivers.
22

23 **Conclusion**

24 The Office recommends that the Council find that NWN meets the recreation standard, OAR
25 345-022-0100. NWN has committed to halting construction by 5:45 in the Sherwood area if
26 construction noise is audible from Stella Olsen park. This commitment should be made a site
27 certificate condition. No other conditions are proposed.
28

29 **12. OAR 345-022-0110 Public Services**

30 To issue a Site Certificate, the Council must find that the construction and operation of the
31 facility, taking into account mitigation, is not likely to result in significant adverse impact to the
32 ability of communities within the study area to provide the following governmental services:
33 sewers and sewage treatment, water, stormwater drainage, solid waste management, housing,
34 traffic safety, police and fire protection, health care and schools.
35

36 **Discussion**

37 The analysis area for the Public Services Standard is the area within 5 miles from the site.
38 Oregon communities within the analysis area are: Aurora, Banks, Barlow, Beaverton, Canby,
39 Cornelius, Donald, Forest Grove, Hillsboro, Hubbard, King City, Molalla, Newberg, North
40 Plains, Sherwood, Tigard, Tualatin, Woodburn and Wilsonville
41

42 The Project the construction of approximately 60 miles of 24-inch diameter steel pipeline and
43 associated facilities. NWN evaluated the socio-economic impacts of the Project on the cities of
44 North Plains, Hillsboro, Cornelius, Forest Grove, Newberg, Sherwood, Wilsonville, Aurora,
45 Barlow and Canby.
46

47 Potential service providers include Washington, Clackamas and Marion Counties. The Preferred
48 Corridor passes through the southwest corner of the Hillsboro UGB, and briefly enters Barlow.
49 The Project will not pass through any other incorporated cities or towns or unincorporated

1 communities. The cities of North Plains, Sherwood and Canby are about one-half mile away
2 from the proposed corridor.

3
4 During Project construction, workers will work along various sections of the construction
5 easement for a 20-month period. There will be an average of approximately 300 workers on-site
6 during this period, with a peak of 350 to 400 workers during the summer months.

7
8 Since pipeline work is somewhat specialized, some workers will come from out of the area and
9 work through the local hiring halls. These workers are known as "travelers." The mix of local
10 area workers and out-of-area workers (including travelers) is expected to be 45 percent (local)
11 and 55 percent (out-of-area). A small percentage of the workers from outside the area may bring
12 families with school-age children, but NWN estimates that no more than 15 school-age children
13 would be added to the mix. These estimates are based on the Phase III workforce mix and
14 contractor experience with past projects.

15
16 The population of Washington County is approximately 409,305. The population of Clackamas
17 County is approximately 338,251. Marion County's population is approximately 272,760.
18 Accordingly, even during the peak construction period, the Project will not have a significant
19 impact on the population in the area.

20
21 *A. Sewers and Sewage Treatment*

22 No sewage treatment facilities will be needed for the Project. During construction, contract
23 portable toilets will be used. Therefore, the SMPE will not have any adverse impact on any
24 community's ability to provide sewers or sewage treatment

25
26 *B. Water*

27 The Project will require water only during the construction phase. The water will be acquired
28 through temporary permits and at local hydrants. The only significant use of water is during
29 hydrostatic testing at the completion of construction. NWN has estimated that hydrostatic testing
30 will require approximately 8.5 million gallons of water. NWN proposes to obtain water for this
31 testing from three sources. The three sources are: (1) the Lind Reservoir near North Plains; (2)
32 the Tankersley Reservoir near Highway 219 and Burkhalter Road south of Hillsboro near
33 Scholls; and (3) the Willamette River near Wilsonville. The Lind Reservoir and the Tankersley
34 Reservoir are both irrigation ponds. These water sources will require Limited Use Licensing
35 through the Oregon Water Resources Department for diversion. Accordingly, the SMPE will
36 have no impact on the ability of any community to provide water.

37
38 *C. Storm Water*

39 Storm water drainage will be handled on site by natural drainage. NWN has prepared an Erosion
40 and Sediment Control Plan (Appendix K-10 of the ASC) under DEQ's 1200-C stormwater
41 discharge permitting requirements, and must obtain a 1200C permit from DEQ prior to start of
42 construction. The Erosion and Sediment Control Plan ensures that drainage characteristics will
43 be restored following construction as required by Washington, Clackamas and Marion County
44 codes, as applicable. Therefore the pipeline will not adversely affect the ability of any
45 community in the analysis area to provide stormwater drainage.

46
47 *D. Solid Waste Management*

48 Solid wastes generated during construction of the pipeline will include non-hazardous
49 construction materials, such as scrap steel, welding rod, and erosion control materials, such as

1 straw bales, silt fencing, and bio-bags. The scrap steel and welding rod will be collected and
2 transported to a recycling facility. The silt fence material and straw bales will be transported to a
3 local landfill for proper disposal.

4
5 Solid waste disposal will be handled through private contracts with local service companies.
6 Therefore, there will be no adverse impact on the ability of any community to provide solid
7 waste management services.

8 9 *E. Housing*

10 At the peak of construction activity, there will be approximately 350 to 400 workers assigned to
11 work on the Project. NWN anticipates that about half of this work force will require temporary
12 housing. Clackamas and Washington Counties have numerous temporary housing facilities to
13 accommodate the work force. For example, the Canby Chamber of Commerce indicated that
14 there are motel and RV facilities in the area. The Greater Hillsboro area Chamber of Commerce
15 has identified apartments, hotels, motels and RV parks available in the Hillsboro area.
16 Approximately one-half of the construction workers (approximately 100 workers) from outside
17 the area are expected to bring travel trailer and recreational vehicles that can be parked at a
18 variety of parks established to accommodate this type of mobile housing. These estimates were
19 developed through interviews with the contractor that built the 24-inch South Mist Feeder loop
20 from Mist to Bacona in 1999, and are based on the workforce mix on that project. OOE notes
21 that during construction of the 1999 South Mist Feeder loop, no housing related problems were
22 reported, despite the fact that the 1999 project was located in a region with much less housing.

23
24 The Project Order states that both North Plains and Sherwood have commented that the Project
25 could adversely affect housing availability because of reluctance to build new housing close to
26 the pipeline. OOE notes that the proposed corridor is near the UGB for North Plains and
27 straddles the current UGB for Sherwood, but is not located within the limits of either city. OOE
28 also notes that these cities raised these concerns during the NOI review, but did not comment
29 once the Application for Site Certificate was filed. OOE therefore recommends that the Council
30 find that the pipeline will not adversely impact the availability of housing in the analysis area.

31 32 *F. Traffic Safety*

33 The only impact to local traffic will be from the construction activity associated with the Project.
34 Once the facilities are operational, there will be no additional traffic impacts in the area. The
35 extent of traffic impact depends to a large extent upon the amount of final pipeline that is
36 constructed in public rights-of-way instead of adjacent to them.

37
38 The principal roads that will be used to access the Project's construction easement are Dairy
39 Creek Road north of North Plains; US Highways 26, 99W, and 99E; State Highways 8 (TV
40 Highway), 219, and 210 (Scholls Ferry Road); River Road; Scholls-Sherwood Road, and Elwert
41 Road near Sherwood; Arndt Road and Barlow Road south of Canby.

42
43 In its application, NWN has committed to performing all road work under permit provisions
44 provided by the appropriate agency with authority for work within the specific rights-of-way.
45 Traffic control planning and other measures will be developed and implemented through the
46 appropriate permitting process. NWN will have the overall responsibility for ensuring that all
47 contractors on the Project comply with all permit conditions. NWN will ensure contractor
48 compliance through construction inspection programs and construction management personnel.
49 OOE recommends that these commitments be made site certificate conditions.

1
2 1. ODOT and State Highway Sections

3 The work on state highways will be performed under permit provisions provided by the Oregon
4 Department of Transportation. In general, the construction contractor for the Project will be
5 required to provide a detailed traffic control plan for each phase of the work, showing signs and
6 cones, certification and use of flaggers, and proposed methods and times of lane closures. The
7 contractor will be responsible for safely accommodating public traffic within the SMPE limits.
8 NWN will be responsible for ensuring that the contractor complies with all traffic control plans
9 and permit stipulations through its construction inspection programs. The plans must be
10 submitted for approval by ODOT's District Manager or representative in advance of
11 construction. In written comments dated November 20, 2001, Ron Kroop, ODOT district
12 manager, stated that ODOT has no objections to the proposed pipeline as described in the
13 Application. OOE recommends that the commitments by NWN be added as conditions to the
14 site certificate.
15

16 2. Washington County Roads

17 According to the Washington County Department of Land Use and Transportation, Dairy Creek
18 Road has the capacity to handle 14,400 vehicles per day (600 vehicles per hour). The County's
19 year 2000 traffic counts for Dairy Creek Road show an average daily traffic of only 1,080
20 vehicles per day (ASC, Appendix U-2).
21

22 NWN met with Washington County traffic and operations engineers on the potential traffic
23 impacts of the Project. In the ASC, NWN made the commitment that construction schedules
24 will be communicated to the County on a regular basis during the construction phase. In the
25 County's comments on the application, dated November 20, 2001, the County Commissioners
26 expressed support for placement of the pipeline within public road right-of-way. The County's
27 traffic engineers concluded that the Project would not have a significant adverse impact on the
28 ability of Washington County to ensure traffic safety. OOE recommends that the site certificate
29 be conditioned to require that pipeline construction be coordinated with the county, that the
30 county be provided with all final construction plans prior to the start of construction, and that
31 NWN obtain all required county construction permits prior to the start of construction.
32

33 3. Clackamas County Roads

34 When Project staff met with the Clackamas County Emergency Management Coordinator, a
35 representative of the Clackamas County Department of Transportation was also present. The
36 Department's primary concern was that heavy construction equipment might damage paved
37 roads. This impact can be mitigated through the use of roads designated as appropriate for heavy
38 loads. NWN was asked to coordinate Project construction with the County's future paving and
39 culvert replacement programs.
40

41 The major roads that would be affected by pipeline construction in Clackamas County are Arndt
42 and Barlow Roads. The traffic count (average daily traffic) for Arndt Road is 8450 at the
43 Pudding River Bridge and the count for Barlow Road is 4200 at the Highway 99E intersection.
44

45 4. Marion County Roads

46 NWN met with Marion County Department of Public Works, where engineers from that
47 department stated their intent to widen Arndt Road in several years. This will be a joint
48 Clackamas County and Marion County project. The proposed new paved surface width is

1 50 feet. NWN committed to continue coordinating with the counties throughout the construction
2 phase of the Project.

3
4 5. Traffic Impacts – Summary and Mitigation Plans

5 During the peak of the construction phase, the Project will require approximately 350 to 400
6 workers on site. This could yield up to 400 additional vehicle trips per day if single occupancy
7 vehicles are used (ODOT counts each direction of an out-and-back journey as a "trip"). Other
8 construction-related traffic will include material and equipment deliveries and NW Natural
9 personnel, totaling up to 200 additional vehicle trips per day. Together with employee vehicle
10 trips, the maximum total number of additional trips on area roads will be 600 per day. This
11 incremental traffic related to the construction of the pipeline will be scattered along various
12 sections of construction easement so that no single section of road will be solely impacted.

13
14 Impacts from construction will include traffic delays from lane closures and traffic control
15 devices when the pipeline is installed in the public right-of-way. NWN has committed to
16 performing site specific studies of traffic volumes on the major roads, indicating type of count
17 and location as well as time of year and time of day. This information will be used as the basis
18 for traffic control planning and work scheduling to minimize inconvenience and delay and
19 provide safe transition through construction zones for the public and immediate passage for all
20 emergency vehicles. OOE recommends that the site certificate be conditioned to require that this
21 traffic control plan be completed and documented prior to start of construction.

22
23 Given the excess capacity of the existing roads in the area and the relatively light traffic
24 associated with SMPE construction, the Project will not have a significant adverse impact on the
25 ability of communities in the area to ensure traffic safety.

26
27 In Amendment 2 to the South Mist Feeder site certificate (April 1999), the Council adopted the
28 condition that: “ *NWN shall obtain all required permits from the Oregon Department of*
29 *Transportation for construction in public road right-of-way and shall conform to the Standard*
30 *Specifications for Highway Construction – 1996, Oregon Department of Transportation, Section*
31 *00220 – Accommodation For Public Traffic. Ambulances, fire trucks and police shall be*
32 *afforded immediate passage.*” OOE recommends that the same condition be attached to the site
33 certificate for the SMPE.

34
35 G. Police Protection

36 Police protection in the Project area is provided by the Washington County Sheriff's Department,
37 the Clackamas County Sheriff's Department, Marion County Emergency Management, North
38 Plains Police Department, Hillsboro Police Department, Cornelius Police Department, Sherwood
39 Police Department, Wilsonville Police Department, Canby Police Department, and the Oregon
40 State Police.

41
42 NWN met with the Washington County Office of Consolidated Emergency Management, the
43 Washington County Sheriff's Office, the City of Hillsboro, the City of North Plains, Clackamas
44 County's Emergency Management Coordinator and the North Marion Department of Public
45 Works Emergency/Environmental Management, and the Canby Police Department.

46
47 None of the above local police authorities raised any concerns about the project's impact on their
48 ability to provide police protection. OOE recommends the Council find that the proposed

1 pipeline construction and operation do not create any significant concerns for the affected police
2 departments.

3
4 *H. Fire Protection*

5 The Tri-City Fire Protection District, Cornelius Rural Fire District, Hillsboro Fire District,
6 Washington County Fire District #2, Tualatin Valley Fire & Rescue, Aurora Fire District #63,
7 Canby Fire District #62, and the Oregon State Department of Forestry in Forest Grove provide
8 fire protection services in the analysis area. NWN has contacted all these fire districts along the
9 Preferred Corridor and Alternate Corridor Segments.

10
11 NWN made a specific commitment to Canby Fire District #62 to communicate regularly with the
12 District during construction and will designate a contact person to make sure that they are
13 advised of traffic delays that may impact their response times. OOE recommends that this
14 commitment be extended by condition to the other fire departments and districts listed above, as
15 the project passes through their area of responsibility.

16
17 NWN has submitted a letter from Tualatin Valley Fire & Rescue stating that it does not expect
18 the expansion of the pipeline to increase fire hazard, fire suppression costs, or risks to fire
19 suppression personnel to any significant degree. NWN has also submitted a letter from the Tri-
20 City Rural Fire Protection District, received November 16, 2000, indicating no unusual concerns
21 and no incidents involving fire or medical needs on the existing South Mist Pipelines in their
22 district

23
24 The Project will pose little if any additional fire hazard to the area. NWN has operated its
25 existing underground natural gas storage facility and the South Mist Feeder Pipeline for more
26 than 10 years without causing any fires or other hazards. The South Mist Feeder loop
27 (Phase III), which was placed in service in November 1999, has also operated without incident.
28 The pipeline facilities have numerous safety features, including relief valves, in line valves, and
29 remote shutdown systems, as required by federal safety codes.

30
31 Finally, the facilities are monitored from the company's Gas Supply Control Center in Portland
32 and at Miller Station by NWN personnel. NWN's pipelines are also inspected periodically by the
33 OPUC for compliance with the pipeline safety regulations of the U.S. Department of
34 Transportation (49 CFR part 192). A recent letter from the OPUC confirms that NW Natural's
35 track record "provides a high level of confidence in public safety." Accordingly, OOE
36 recommends that the Council find the SMPE will not have an adverse impact on the ability of
37 communities in the area to provide fire protection.

38
39 *I. Health Care*

40 The minimal number of permanent employees and the relatively small construction work force
41 should place few additional demands on the health care facilities that serve the area. Local
42 hospitalization needs can be met by hospitals in the Portland area (Figure U-5).

43
44 However, to the extent that there are injuries or other health care needs associated with the
45 Project, the Washington County Office of Consolidated Emergency Planning and the Clackamas
46 County Sheriff's Office Emergency Management Coordinator have emergency incident plans in
47 place. They have confirmed that they have the supplies and materials necessary to support the
48 plans and that its resources are available to be deployed in connection with the Project. In
49 addition, the Tri-City Rural Fire Protection District in Banks states that Metro West Ambulance

1 and Lifelight will respond to any medical incidents in the area of Washington County that is
2 served by the district (Appendix U-6).

3
4 OOE recommends that the Council find that the SMPE will not have a significant adverse impact
5 on the ability of the communities in the area to provide health care services.

6 7 **J. Schools**

8 NWN estimates that pipeline construction workers will bring no more than 15 school age
9 children into the area during the construction phase of the Project. This estimate is based on the
10 workforce that built the 24-inch Phase III South Mist Pipeline loop in 1999. It is difficult to
11 predict where these families will obtain housing but even if all of the families were housed in
12 one of the smaller school districts, the expected impact would be minimal. Most of the
13 construction workers will locate in areas where housing is available, which are also the areas that
14 have schools of sufficient size to accommodate 15 additional students with little difficulty.

15
16 NWN met with the Director of Facilities, Planning and Property and the Maintenance
17 Coordinator for Hillsboro School District, District #11, and briefed them on the Project. NWN
18 notes that the opening of a "hi-tech" plant can bring as many as 800 new students to the District's
19 schools during a school year.

20
21 The North Marion School District has raised concern over the impact on bus traffic along Arndt
22 Road and Butteville Road. NWN committed to providing close coordination and frequent
23 communications with the school district during the construction phase to manage bus traffic
24 impacts. Canby School District raised similar concerns, as did the Sherwood School Board in a
25 letter dated November 21, 2001. OOE recommends that the NWN commitment to coordinate
26 with the North Marion School district be extended by condition to Canby, Sherwood, and
27 Hillsboro districts.

28
29 The impact on school bus schedules is minimized by the fact that much of the construction must
30 take place during summer. For these reasons, OOE recommends the Council find that the
31 Project will not have a significant adverse impact on the ability of school districts in the area to
32 provide class space or to provide safe and timely bus transportation for local students.

33 34 **Conclusion**

35 The construction and operation of the proposed pipeline is not expected to adversely affect the
36 ability of local service providers to provide water, stormwater drainage, sewage service, solid
37 waste management, police and fire protection, health care, housing, traffic safety or schools.
38 NWN has committed to obtain necessary ODOT and county road department permits for
39 construction in public roads, and to work with local police, fire departments and school districts
40 to assure passage of school busses, police, fire and other emergency vehicles during construction.
41 OOE has proposed general conditions to the site certificate formalizing those commitments, and
42 a specific condition that police, fire and emergency medical vehicles be afforded immediate
43 passage. OOE also recommends a condition requiring that the traffic control plan described
44 above be finalized prior to the start of construction. The proposed conditions are at section VI of
45 this Order. With these conditions OOE recommends the Council find that the proposed pipeline
46 meets the Public Services standard.

47 48 **13. OAR 345-022-0120 Waste Minimization**

49 This standard provides that:

- 1 (1) To the extent reasonably practicable, the applicant shall minimize generation of solid
2 waste and wastewater in the construction, operation, and retirement of the facility, and
3 when solid waste or wastewater is generated, recycle and reuse such wastes.
4 (2) To the extent reasonably practicable, the accumulation, storage, disposal and
5 transportation of waste generated by the construction and operation of the facility must
6 have minimal adverse impact on surrounding and adjacent areas.
7

8 **Discussion**

9 Almost all of the waste generation from the proposed pipeline will occur during construction.
10 The pipeline will not generate solid or liquid waste during operation. NWN will retire the
11 pipeline by cutting and capping it, purging with an inert gas to ensure no hazardous material
12 remains, and abandoning the line in place. Small sections of the pipeline would be removed and
13 recycled at an appropriate facility. Other than this small volume of metal, there would be no
14 generation of either hazardous or non-hazardous solid waste during the retirement of the
15 pipeline.
16

17 Solid Waste

18 NWN proposes to recycle and reuse solid waste generated by construction, operation and
19 retirement of the energy facility as much as possible.
20

21 Solid wastes generated during construction will consist of non-hazardous construction materials,
22 including scrap steel, welding rod, and erosion control materials, such as straw bales, silt
23 fencing, and bio-bags. NWN will collect the scrap steel and welding rod and transport them to a
24 recycling facility. The silt fence material and bio-bags will be transported to a local landfill.
25 Straw bales will be used as mulch where practicable. Excess bentonite, after all recycling uses
26 are exhausted, will be placed in local landfills. OOE recommends that these NWN commitments
27 for proper handling of solid waste be made conditions in the site certificate.
28

29 Wastewater

30 During construction, waters from local sources will be used for directional boring, hydrostatic
31 testing of the pipeline and dust abatement. Where required, waste water disposal will be done in
32 accordance with WPCF permits issued by the Department of Environmental Quality.
33

34 The water that will be acquired from local sources for the purpose of hydrostatically testing the
35 pipeline will be held to a minimum. The pipeline will be tested in sections with three discharge
36 locations. This process will reduce the need for additional water sources and the total gallons of
37 water required. Roughly one eighth of the hydrostatic test water will be filtered and discharged
38 to a farmer's retention pond to be later used for crop irrigation.
39

40 NWN has proposed to minimize the use of water by reusing water during construction. Water
41 used during the horizontal directional drilling process will be reused several times. The water
42 will be used first used to hydrostatically test a section of pipe. The test water will then be
43 drained from the pipe and stored for later use in the horizontal drilling process. The excess mud
44 from the drilling process will be collected and run through a process to separate the bentonite,
45 sands, and water for reuse. The bentonite and water will be used again in the drilling process.
46 OOE recommends that this procedure for minimizing use of water during construction be
47 considered a NWN commitment and made a condition in the site certificate.
48

49 **Conclusion**

1 Waste generation will be limited primarily to construction. NWN has proposed steps for
2 minimization and proper handling of solid waste and wastewater, which appear as proposed
3 conditions at section VI of this order. The Office therefore recommends that the Council find
4 that the proposed pipeline meets the waste minimization standard.
5

6 **B. Compliance with EFSC Need for Facility Standard, OAR Chapter 345,**
7 **Division 23**

8 The EFSC Need for Facility Standard is set forth in OAR Chapter 345, Division 23. The
9 standard applies to the SMPE because it a natural gas pipeline. OAR 345-023-0005. NWN
10 proposes to demonstrate Need for Facility under the Least Cost Plan Rule, OAR 345-023-0020,
11 which states:

12 *(1) The Council shall find that the applicant has demonstrated need for the facility if the*
13 *capacity of the proposed facility or a facility substantially similar to the proposed facility,*
14 *as defined by OAR 345-001-0010, is identified for acquisition in the short-term plan of*
15 *action of an energy resource plan or combination of plans adopted, approved or*
16 *acknowledged by a municipal utility, people's utility district, electrical cooperative, other*
17 *governmental body that makes or implements energy policy****

18 *(2) The Council shall find that a least-cost plan meets the criteria of an energy resource*
19 *plan described in section (1) if the Public Utility Commission of Oregon has*
20 *acknowledged the least cost plan.*
21

22 To demonstrate compliance NWN submitted its July 2000 Integrated Resource Plan (“IRP”) and
23 Oregon Public Utilities Commission (OPUC) Order 00-782, LC-29, dated December 11, 2000, in
24 which OPUC acknowledged the IRP.
25

26 OPUC staff, on page 4 of Order 00-782 recommended that:

27 *“the Commission should acknowledge the need for development of Phases IV and V of*
28 *the South Mist Pipeline Extension from Bacona to Molalla and the associated*
29 *underground storage...the company’s plan indicates that a phased development of*
30 *underground storage in the Mist area is the least-cost strategy for meeting future load*
31 *requirements...”*
32

33 The Commission adopted the above recommendation on page 8 of Order 00-782. On this basis
34 alone, the SMPE meets the criteria of OAR 345-023-0020.
35

36 **Discussion**

37 Regulated public utilities in Oregon must issue a Least Cost Plan and have that plan
38 acknowledged by OPUC. NWN is a public utility, as defined in ORS 757.005. On April 20,
39 1989, pursuant to its authority under ORS 765.515, OPUC issued Order 89-507 in Docket UM
40 180 adopting least-cost planning for all energy utilities in Oregon.
41

42 OPUC’s requirements for a least cost plan include requirements to : (1) examine a range of
43 demand forecasts; (2) examine all feasible means of meeting demand, including traditional
44 supply side as well as demand side resources; (3) treat supply and demand side resources
45 equally; (4) describe the company’s long term plan for meeting expected load growth; (5)
46 describe its plan for resource acquisitions between planning cycles; (6) take uncertainties into
47 account; and (7) involve the public in the planning process.
48

49 In its Order No. 00-782, page 7, OPUC notes that the primary goal must be least cost to the

1 utility and its ratepayers consistent with the long-run public interest. OPUC also notes that the
2 plan must be consistent with the energy policy of the state of Oregon, as expressed in ORS
3 469.010.
4

5 In the IRP, NWN provided load forecasts based on projected economic trends, anticipated gas
6 prices, expected population growth and estimated usage patterns of industrial and commercial
7 customers. The company used Northwest Power Planning Council economic and demographic
8 forecasts to produce low, medium-low, medium, medium-high, high and high-high gas
9 consumption scenarios. The company believes the medium-high scenario is most likely.
10

11 NWN considered a range of strategies for meeting the projected demand growth. These included
12 demand side strategies, such as a high-efficiency furnace program. In the IRP, NWN committed
13 to working with OPUC and OOE regarding accelerating the adoption of energy efficient
14 technologies in the commercial and industrial sectors.
15

16 NWN considered different supply side resources, including storage, purchase of additional firm
17 capacity through the interstate pipeline system, and peak load shaving facilities. NWN used a
18 linear programming model (a computer model for optimizing among different options) to select
19 the least cost resource mix.
20

21 Generally, underground storage is one way of balancing supply with a highly fluctuating
22 demand. Storage allows the utility to buy gas when demand is low and have it available during
23 peak demand periods. This protects against the need to buy gas at peak prices on the spot
24 market. The linear programming model indicates that the underground storage facility and the
25 associated SMPE is the least cost resource. The IRP indicates that the SMPE and storage option
26 is lower in cost than other supply side strategies over the 30 year planning horizon by
27 approximately \$250 million, assuming the medium-high growth scenario.
28

29 In written comments dated September 5, 2000, OOE requested further clarification on the
30 sensitivity of the IRP to the demand forecast assumptions. Specifically, OOE noted that the
31 assumption of 30 consecutive design weather years could overstate the net benefit from the
32 SMPE. In reply, NWN provided additional analysis demonstrating that the SMPE would remain
33 the least cost resource under weather conditions more closely approximating the average weather
34 over the past 20 years. OPUC concurred with that analysis and ordered NWN to address this
35 question more thoroughly in the next least cost plan.
36

37 On page 10 of its Order 00-782, OPUC concluded that the IRP adheres to the least cost plan
38 principles described above and is therefore acknowledged.
39

40 In Exhibit K of the ASC, NWN also provided reasons why a pipeline in the SMPE's general
41 location is needed from an operational point of view as well. Briefly, NWN noted that load
42 growth is especially rapid in the western suburbs of the Portland area. NWN states that in
43 addition to facilitating underground storage, the SMPE will allow more efficient distribution to
44 existing feeder lines that serve Hillsboro, Sherwood, Newberg and other suburbs in the western
45 Metro area. The operational considerations are outside the scope of least cost planning but are
46 included here for clarity. We discuss the operational considerations more thoroughly in
47 Attachment B (analysis of compliance with ORS 215) of this order.
48

1 **Conclusion**

2 The SMPE is identified in the NWN least cost plan acknowledged by the OPUC on December
3 11, 2000. The SMPE therefore meets the Council’s Need for Facility standard as set forth in
4 OAR 345-023-0020.

5
6 **C. Compliance with Public Health and Safety Requirements**

7 The Council does not have an explicit “public health and safety standard”. However, ORS
8 469.504(g) obligates Council standards to address public health and safety, and ORS 469.401(2)
9 states that the site certificate shall contain conditions for protection of the public health and
10 safety.

11
12 NWN has committed to comply with 49 CFR 192 requirements in construction and operation of
13 the proposed pipeline and has identified certain areas where the proposed pipeline design
14 exceeds minimum 49 CFR 192 requirements. Among other factors, NWN has committed to
15 having trained emergency response personnel on duty, 24 hours a day, at the Mist underground
16 storage facility’s Miller Station and in Portland, to monitor the pressure on a 24 hour basis.
17 These commitments are already conditions to the Mist Underground Storage Site Certificate and
18 the South Mist Feeder site certificate as amended in 1999. However, since the SMPE requires a
19 separate site certificate, OOE recommends that these commitments be made conditions to that
20 site certificate as well.

21
22 Generally, natural gas pipeline safety is under the jurisdiction of the U.S. Department of
23 Transportation, Office of Pipeline Safety (“OPS”). The OPS implements safety standards
24 applicable to all gas pipelines at Title 49, Part 192, Code of Federal Regulations (49 CFR 192).
25 In Oregon, the OPS has delegated responsibility for inspection and enforcement of 49 CFR 192
26 standards to the Oregon Public Utility Commission (“OPUC”). The OPUC has adopted Oregon
27 Administrative Rules that meet or exceed the requirements of 49 CFR 192. The OPUC rules can
28 and do exceed 49 CFR 192 requirements in some cases.

29
30 To decide what conditions are appropriate under ORS 469.401(2), the Council must ask two
31 questions:

- 32
33 (1) Does the proposed pipeline meet the applicable standards?
34 (2) Does public health and safety require the Council to impose conditions in excess of those
35 standards?
36

37 *Does the proposed pipeline meet applicable standards?*

38 The basic safety standards required here are federal standards in 49 CFR 192. No one has
39 alleged that the federal safety standards will not be met. Nor has anyone offered any facts
40 regarding NWN’s record of compliance with this standard or failure to comply. Nonetheless,
41 OOE requested, and NWN provided, additional detail regarding the specifics of 49 CFR 192 in a
42 “Design Summary” as Exhibit BB of the ASC.

43
44 Section §192.5 of 49 CFR specifies the class location of an area based on building density and
45 occupancy. A “class location unit” is defined as an on-shore area that extends 220 yards on
46 either side of the centerline of any continuous 1-mile section of pipe. The table below describes
47 the four classes, with the design factors used by the code in determining required pipe wall
48 thickness. A lower design factor results in larger pipe wall thickness.
49

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

2

3 Based on aerial photographs and field inspections, NWN has determined that most of the
4 proposed corridor would be Class 2, although in some locations near Sherwood and Hillsboro the
5 proposed corridor would properly be classified as Class 3. NWN has committed to design,
6 construct and inspect the pipeline to Class 3 specifications for its entire length.

7

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

11

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

12 P is the design pressure MAOP,

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

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

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

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

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

18

19 For the proposed 24-inch pipe, the required wall thickness would be .277 inches in class 2 and
20 .332 in class 3 locations. The concern was raised that the federal code allows thinner pipe walls
21 in rural areas than in urban. However, NWN has specified .375 inches at all locations, which
22 meets the requirement for class 3 locations.

23

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

27

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

30

31 Class 1 - 20 mile separation

32 Class 2 - 15 miles separation

33 Class 3 - 8 mile separation

34 Class 4 - 5 mile separation

35

36 For the proposed 24-inch pipeline, NWN specified valves at closer intervals than those listed

1 above. Block valves do not prevent an accident, but they limit the inventory of gas available
2 after an accident and therefore decrease the consequences.

3
4 Welding requirements are specified in sections § 192.221 through § 192.245. Specifically, §
5 192.227(a) requires welders to be qualified in accordance with section 3 of American Petroleum
6 Institute (API) standard 1104. The welders used on the proposed 24-inch line will be so
7 qualified.

8
9 Section § 192.243 stipulates that a minimum of 15% of welds be tested in class 2 locations and
10 100% of welds in class 3 locations be tested (x-rayed). NWN will test 100% of welds in all
11 locations.

12
13 Section § 192.327 stipulates that a minimum of 36 inches of cover be maintained in both class 2
14 and 3 locations. NWN has committed to maintaining 48 inches of cover, and 60 inches in timber
15 or cultivated lands.

16
17 Corrosion protection requirements are set forth in sections § 192.451 through 491 of the code.
18 NWN has committed to using both cathodic protection and epoxy coatings for corrosion
19 protection.

20
21 Subpart J of the code (sections § 192.501 through § 192.517) set forth test requirements. NWN
22 meets these requirements by pressure testing the line to 1080 psi, or 150% of design pressure.

23
24 Subpart L of the code (section § 192.613) requires:

25 *“*** a procedure for continuing surveillance of the facility and appropriate action*
26 *concerning changes in class location, failure, leakage history, corrosion, substantial*
27 *changes in cathodic protection requirements and unusual operating and maintenance*
28 *conditions.”*

29
30 Subpart M, §§192.705 and 706, require patrolling and leakage surveys to observe surface
31 conditions for indications of leaks and other factors affecting safety and operation. The program
32 at NWN includes a combination of visual surveys and instrumentation.

33
34 OAR 345-024-060(5) requires the best available technology to monitor the pipeline to ensure
35 public health and safety. The industry standard methods of monitoring the pipeline include, but
36 are not limited to, electronic internal inspection devices known as “smart pigs”. Federal
37 regulations require that the pipeline accommodate such inspection devices, and NWN has
38 proposed launching stations (“pigging stations”) along the proposed corridor. NWN will also
39 use a technique based on electronic monitoring of the low voltage signal used for cathodic
40 protection. NWN will also install pressure sensors along the line so that any loss of pressure will
41 be detected. The pressure sensors can be read on a real-time basis from NWN headquarters in
42 Portland.

43
44 All provisions of 49 CFR 192 are within the scope of the OPUC inspector, to whom the federal
45 government has delegated authority for enforcement of this code in Oregon. The OPUC
46 inspector stated that he has inspected NWN and has found them in compliance.

47
48 Based on the above, we conclude that the proposed pipeline meets the applicable state and
49 federal requirements.

1
2 Hazard to the Public - General Safety Considerations

3 Even if the project complies with applicable federal and OPUC regulations, the Council has
4 statutory authority to impose additional conditions if needed to protect public safety.
5

6 Recent pipeline explosions indicate that pipeline failures, while unlikely, could have serious
7 consequences if allowed to occur in a populated area. Recent pipeline explosions at Bellingham,
8 Washington (2000), and Carlsbad, New Mexico (2001), have resulted in loss of human life and
9 have prompted Congressional action. The Bellingham event involved a liquid gas line rather
10 than a natural gas line, and prompted revisions to federal liquid gas line safety codes at 49 CFR
11 195.
12

13 Natural gas pipeline explosions in the Pacific Northwest have occurred on sections of the
14 Northwest Pipeline, which is an interstate pipeline (and under federal jurisdiction only)
15 constructed before 1960. In all cases landslide hazard was a factor. The SMPE corridor is
16 generally flat and avoids landslide prone areas. At its northern end the corridor includes hilly
17 terrain and follows a ridge north of Dairy Creek. However, NWN's geotechnical consultant paid
18 particular attention to the known slide area beneath this ridge (the "Sherman Mill" slide) and
19 determined that the risk of landslide affecting the pipeline is acceptably low.
20

21 In this Order, we address this concern in the discussion of compliance with the EFSC Structural
22 Standard, OAR 345-022-0020. The standard requires that the pipeline be designed to prevent
23 safety hazards due to ground motion from seismic and non-seismic sources. These motions
24 include earthquake and landslide. In section IV.A.2 of this order, OOE recommended that the
25 Council find that the proposed pipeline meets this standard, subject to the condition that NWN
26 adhere to certain design and monitoring recommendations by its geotechnical consultant.
27 Therefore OOE believes the conditions recommended under the Structural standard are also
28 conditions to protect public health and safety.
29

30 NWN commitments in excess of 49 CFR

31 In certain areas NWN has committed to design or operational measures that exceed the minimum
32 49 CFR requirements. Two major design features are the use of 0.375-inch pipe wall thickness
33 and the use of 100% x-ray testing on all welds. Both of these features exceed the requirements
34 for pipe in a class 3 location, even though the population density in the proposed corridor is
35 generally class 2. In public road right of way, 100% weld testing is required by the federal code
36 (§ 192.243 (d)(3)).
37

38 In public comment (Eastview Road Conservancy and Washington Co. Farm Bureau), affected
39 property owners suggested that NWN use the design factors for class 4, which would increase
40 pipe wall thickness. However, the specified pipe thickness for this proposed pipeline already
41 exceeds the required thickness for class 3, so that the class 4 design factor would not actually
42 result in significantly thicker pipe. Further, we note that class 4 is defined at 49 CFR 192 as
43 areas where multistory buildings predominate. Using this definition, even residential
44 subdivisions within the city limits of Sherwood or Hillsboro would be class 3, and NWN does
45 not propose to build near any such subdivisions. If similar subdivisions are developed in the
46 future near the proposed corridor, the class 3 design would still comply with the federal
47 regulation. Therefore OOE does not recommend this requirement.
48

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

1 calculations. Each lot of pipe was tested at manufacture, and the as-tested strengths ranged from
2 53,410 to 58,100 psi with an average of 54,840.

3
4 The range of as-tested strength also has safety significance. Carbon steel at extremely high
5 strength (greater than 60,000 psi) can be more susceptible to brittle fracture than steel of lower
6 strength. Steel with strength less than 60,000 is strong enough to easily exceed federal code
7 requirements, and is generally more ductile. The added ductility reduces the likelihood of failure
8 on impact (such as a third-party digging accident).

9
10 NWN has also exceeded minimum federal requirements for clearances. The code requires 12
11 inches, while NWN has committed to 24 inches. The code requires 36 inches of pipe cover,
12 while NWN has committed to 48 inches and 60 in cultivated or timberland areas.

13
14 Another safety feature not specified in federal codes is the use of strain gauges and inclinometers
15 and the use of more frequent patrols (and better trained personnel performing the patrols.) These
16 factors are not required by federal code, but they represent the “best available technology”
17 required by OAR 345-026-060(5). Section §192.705 requires the following patrolling intervals:

- 18
19 • Class 1 or 2 location: 15 month interval; but at least once in each calendar year. At
20 railroads or highway crossings the requirement is 7.5 month intervals but at least twice
21 each calendar year.
- 22 • Class 3 location: 7.5 months but at least twice in each calendar year. At railroads or
23 highway crossings the requirement is 4.5 months and 4 times each calendar year.
- 24 • The federal code does not specify how the patrols are done, for example aerial patrols are
25 acceptable. NWN has proposed to exceed this requirement by having more frequent
26 patrols and having at least one a year on foot.

27
28 In its July 2001 response to OOE’s May 2001 Request for Additional Information (RAI), NWN
29 listed other design features that are not required by federal code but which incrementally reduce
30 the likelihood and consequences of a pipeline accident. These features include placing yellow
31 warning tape underground for the full length of the pipeline, so that anyone digging or operating
32 digging equipment would strike the tape first and be warned. At OOE’s request, NWN
33 committed to ordering steel that meets the American Petroleum Institute (API) 5L specification,
34 including supplemental requirement 5A and 5B. These specifications impose tolerances on
35 chemical impurities and resistance to brittle fracture, exceeding the requirements of 49 CFR 192.

36
37 NWN will be required by federal and OPUC regulations to implement an overall Risk
38 Management Program. The USDOT, in response to Congressional reaction to the accidents at
39 Bellingham and Carlsbad, has issued such requirements for liquid gas pipelines at 49 CFR 195,
40 and will issue analogous requirements for natural gas pipelines. The requirements apply not to
41 an individual pipeline but to the company’s entire transmission and distribution system as a
42 whole. The program that NWN will be required to implement must be approved by OPUC, and
43 includes third party damage prevention measures, periodic assessment of pipeline integrity using
44 either internal inspection devices (so-called “smart pigs”) or equivalent, and mandatory operator
45 qualification programs.

46
47 NWN has also committed to more isolation valves along the proposed pipeline than would be
48 required by 49 CFR 192. As noted above, the federal regulations allow up to 8 miles between
49 isolation valves in a class 3 zone, and up to 15 miles in a class 2 zone. NWN has committed

1 (Table 9, Exhibit B) to 11 isolation valves along the 62 mile corridor. The design summary at
2 Exhibit B shows one interval of 7.38 miles between isolation valves and all other intervals less
3 than 7 miles. Moreover, NWN has specified remote operation capability for some isolation
4 valves, which also exceeds the federal requirement.
5

6 *Pipeline location*

7 Some affected property owners have pointed out proximity to houses as a potential safety issue.
8 However, federal safety codes recognize that it may be necessary to place pipelines near houses
9 in order to provide service. Also, population density can increase years after the pipeline is
10 installed. The federal code addresses the risk by requiring thicker pipe, higher test pressures,
11 more stringent weld inspections, and more frequent pipeline surveillance in higher population
12 areas. The proposed NWN 24-inch pipeline follows this guidance by designing the pipe to class
13 3 requirements even in class 2 locations.
14

15 The only way to guarantee that the pipeline is not near any residence is to permit widespread use
16 of EFU land. As discussed in Attachment B to this order (compliance with ORS 215), the
17 Council would have to find that the pipeline “must” be sited on farmland for safety reasons in
18 order to justify this step. We believe the word “must” implies an unacceptable risk. Considering
19 the amount of existing pipeline, both in Oregon and nationwide, in areas that are more densely
20 populated than Washington county, OOE does not believe this step can be justified.
21

22 **Conclusion**

23 In its application, NWN described in detail how they will meet applicable federal safety
24 regulations, and they supplied testimony from the authorized OPUC inspector that they have
25 complied in the past. No one has indicated that they will not comply with the applicable codes.
26 The Office recommends the Council conclude that the facility will meet applicable safety codes.
27

28 In its design summary (Appendix B-1 of the ASC) and in Exhibit BB, NWN described design
29 features that exceed the minimum federal safety requirements. These include pipe wall thickness
30 greater than required for population class 3 at the specified pressure, hydrostatic testing at greater
31 pressure than required, tolerances on steel, 100% radiography on welds, and remotely operable
32 isolation valves. OOE recommends that the Council adopt conditions requiring design and
33 construction substantially in compliance with these design features.
34

35 **D. Requirements of Agencies Other than EFSC**

36 The proposed pipeline will cross wetlands and will require a removal/fill permit in accordance
37 with Department of State Lands (DSL) regulations.
38

39 Also, NWN will hydrostatically test the proposed pipeline, requiring a one-time use of water for
40 testing. Upon completion of the hydrostatic test, NWN will dispose of the water using land
41 application. NWN will require a Water Pollution Control Facilities (WPCF) permit from the
42 Department of Environmental Quality.
43

44 **1. DSL Removal/Fill Permit**

45 The Oregon Division of State Lands (DSL) administers the Oregon Removal-Fill Law (ORS
46 196.800-.990), which relates to and codifies state jurisdiction and regulatory authority over
47 “waters of this state” (waters). Waters includes wetlands, rivers, ponds, streams, creeks and
48 lakes.
49

49 The proposed pipeline will affect regulated waters and will require a removal/fill permit in

1 accordance with DSL regulations at OAR 141-85-005 to 141-85-090. A Removal-Fill Permit is
2 needed if 50 cubic yards or more of material is removed, filled or altered within any waters at the
3 proposed site. Under the General Standard of Review, OAR 345-022-0000, the Council must
4 determine compliance with applicable DSL regulations in order to grant the site certificate.

5 **Discussion**

6 NWN's consultant URS conducted field studies along the Preferred Corridor and the Alternate
7 Corridor Segments between May 8 and November 29, 2000. The proposed corridors are 200 feet
8 wide. If approved, the construction right of way would be 80 feet wide. URS delineated wetlands
9 within the analysis area. They determined 68 sites within the preferred and alternate corridors to
10 be jurisdictional waters, including the Willamette River, the Tualatin River, the Pudding River,
11 Dairy Creek, Plentywater Creek, Gumm Creek, Chicken Creek, Cedar Creek, and Creamery
12 Creek, as well as unnamed creeks, ditches and wetlands. Each site is described in Exhibit J of
13 the *Application for Site Certificate for the South Mist Pipeline Extension*, dated March 2001,
14 prepared for NWN by URS.

15 **Wetland Impacts**

16 Based on these studies, construction within the Preferred Corridor will impact 42 of the 68
17 waters. Impacts will be temporary in nature. Open trenching of major river and stream crossings
18 and associated higher quality wetlands will be avoided by a subsurface directional boring. NWN
19 estimates that a total of approximately 7.865 acres¹⁷ of waters will be impacted as follows: 0.67
20 acres of forested riverine or slope wetlands; 0.197 acres of scrub-shrub wetlands; 6.435 acres of
21 emergent slope, depressional or riverine emergent wetlands; and 0.563 acres of riverine
22 unconsolidated bottom waters. NWN estimates that up to 188,979 cubic yards of material will
23 be excavated during trenching and 170,000 cubic yards will be backfilled into wetlands.

24 Impacts to wetlands and waters will result from trenching and construction activities within the
25 construction corridor. As described below, trenching may be accomplished by the wet trench
26 method, the dry stream trench method, or the flume and trench method. Also proposed is the dam
27 and pump method.

28 NWN proposes wet trench and dry stream trench methods for 27 wetlands crossings where there
29 is very low flow velocity and volume (wet trench) or there is no flowing water or inundation (dry
30 stream trench). These two trenching methods are also referred to as the cut and fill construction
31 method. The trenching methods are proposed for riverine forested, unconsolidated bottom, and
32 emergent waters, as well as slope emergent/depressional, forested, scrub shrub and emergent
33 wetlands. Excavation will be in two phases in order to separate the topsoil from the subsoil.
34 Excavated material will be placed in holding areas outside the wetlands. Any water flowing out
35 of the holding area will be filtered, then either percolate into the ground or flow back to the
36 wetland.

37 One site (0.05 acres) will be impacted by the flume and trench method (Site #51- East Fork
38 Dairy Creek). It is not possible to bore this section due to topographic constraints. Temporary
39 sandbag dams will be installed upstream and downstream of the crossing site and a flume, or
40 pipe bypass, between the dams will maintain the flows around the construction area while the
41 pipeline is trenched. As the East Fork of Dairy Creek is a fish bearing stream, the flume will be
42 constructed and maintained in accordance with ODFW guidelines for fish passage. Prior to the
43 placement of the dams the construction area will be surveyed for fish by a fishery biologist. Any

¹⁷ Within the 200 proposed corridor, NWN defined an 80-foot "preferred alignment". The acreage figures are based on that alignment. However, NWN has requested findings of compliance for the entire 200 foot corridor. Actual acreage will depend on the exact alignment chosen during construction.

1 fish that are present or that become trapped during the installation of the dams and flume will be
2 captured and relocated by the fishery biologist to the stream downstream of the project. Water
3 contained with the dams will be pumped onto the ground away from the stream. This water will
4 either percolate into the ground or will be filtered through a sediment capturing system such as
5 filter fencing or straw bales.

6
7 The dam and pump construction technique will be used on the other 14 crossings, with impacts
8 totaling 0.162 acres to riverine unconsolidated bottom waters. This technique involves the
9 placement of temporary sandbag cofferdams upstream and downstream of the crossing and
10 dewatering by pumps. Fish trapped by the cofferdams will be removed by a fishery biologist and
11 released downstream of the project. Water will be pumped to a riparian area above the ordinary
12 high water level and allowed to slowly filter back to the waterway through erosion /sediment
13 filtration systems. Topsoil and subsoils will be kept separate and re-installed, as will any gravels,
14 cobbles or other substrate material. Residual soil will be disposed of in a designated upland
15 location.

16 17 **Mitigation Proposed by NWN**

18 NWN's application proposes the mitigation the measures listed below. OOE has reorganized and
19 revised the language of some of these measures.

20 21 **Avoidance**

22 NWN proposes to avoid impacts to regulated waters within the 200-foot corridor by:

- 23 • altering the pipeline alignment where feasible to avoid higher quality, undisturbed wetlands
24 or streams;
- 25 • using construction techniques that avoid wetland impacts, such as over or under existing
26 culverts, slick bore or horizontal directional drilling methods of pipe installation; and
- 27 • using existing rights-of-way that have previously been disturbed.

28 29 **Minimization Techniques**

30 NWN proposes to minimize impacts and restore unavoidable impacts to regulated waters by:

- 31 • narrowing the construction corridor in sensitive areas;
- 32 • completing all in-water work during the designated ODFW in-water work period July 1 to
33 October 1;
- 34 • Working from construction mats in wetland areas to minimize disturbance to soil and plants;
- 35 • Not removing trees within wetland or riparian areas where practicable;
- 36 • Restoring wetland and waterway soil stratum to pre-construction topography and structure;
- 37 • Mulching and hydroseeding sensitive areas prone to erosion, especially in exposed riparian
38 areas;
- 39 • Disposing of excess soil in designated upland locations;
- 40 • Installing water breaks along the pipeline to prevent lateral movement of groundwater within
41 the pipeline trench backfill;
- 42 • Limiting use of machinery in wetlands and waterways;
- 43 • Using Best Management Practices (BMPs) in accordance with local and state water quality
44 regulations during and after construction;
- 45 • Removing any flow diversion and restore the hydrology of the site immediately after
46 completion of construction;
- 47 • Replanting with salvaged plants as soon as practicable after construction;
- 48 • Restoring with native seed mix areas dominated by undesirable vegetation;

- 1 • Restoring stream channels to pre-construction condition, including riffle-pool morphology
- 2 and stream channel substrate;
- 3 • Covering and moistening topsoil stored for more than 1 day with geotextile fabric to ensure
- 4 the viability of the plant species present;
- 5 • Salvaging and stockpiling vegetation during construction. If the vegetation cannot be
- 6 replanted within 1 day, water and shade will be provided until plants are replanted;
- 7 • Replanting disturbed riparian areas with a mix of native grasses, shrubs, and trees;
- 8 • Having a fisheries biologist present during flume installations at fish-bearing stream
- 9 crossings to net and release downstream any fish stranded between the diversion dams; and
- 10 • Using flumes on fish-bearing streams constructed in accordance with ODFW guidelines for
- 11 fish passage.

12

13 **Monitoring plan**

14 NWN proposes to monitor the restoration areas during the first, third, and fifth years following

15 mitigation. The monitoring will include:

- 16 • Establishment of permanent vegetation transects
- 17 • Vegetation sampling
- 18 • Post construction hydrologic conditions
- 19 • Erosion or maintenance concerns
- 20 • Fixed photographic documentation points
- 21 • Monitoring reports to DSL and the Corps of Engineers

22

23 **DSL Permit**

24

25 DSL has issued a Removal-Fill permit for this project (DSL #24064-RF)¹⁸. The permit

26 authorizes the removal and backfill of up to 188,979 cubic yards of material in Sections 2 and

27 20, T1 & 3N, R3W & R1E (Multiple Waterways/Wetlands) for construction of the 60 mile long

28 natural gas pipeline through Washington, Clackamas and Marion Counties. The permit also

29 authorizes placement and removal of material within the Preferred Corridor to restore the

30 functions and values associated with the temporarily impacted wetlands and other waters.

31

32 **Operation Related Impacts**

33 Maintenance of the pipeline may occasionally occur in a wetland area. Generally however,

34 pipeline operation will not result in wetland impacts.

35

36 **Retirement Related Impacts**

37 Upon retirement, the proposed pipeline will be capped and left in place. No adverse

38 environmental effects to wetlands or other waters are expected.

39

40 **Consistency with Applicable DSL Statutes and Rules**

41

42 **Statutory standards from ORS 196.825**

43 ORS 196.825(1) provides that "the director shall issue a permit to remove material from

44 the beds or banks of any waters of this state * * * if the director determines that the removal

¹⁸ Under ORS 469.401(3), the DSL removal-fill permit is integrated into the EFSC siting decision. NWN cannot make use of the Removal-Fill permit issued by DSL in 2001, until EFSC issues a site certificate authorizing the project and the permit. However, the permit issued in 2001 is evidence that DSL believes the permit application submitted by NWN meets the applicable DSL regulations.

1 described in the application will not be inconsistent with the protection, conservation and best
2 use of the water resources of this state * * *."

3
4 ORS 196.825(2) provides the overall decision standard for permitting wetland fills. It
5 provides that a permit shall be issued for filling waters of this state only after a determination
6 that "the proposed fill would not unreasonably interfere with the paramount policy of this state to
7 preserve the use of its waters for navigation, fishing and public recreation."

8
9 The wetland fills and removals meet this standard because:

- 10 (a) the impacted wetlands do not now offer major values related to public navigation,
11 fishing and recreation; navigable waters will be bored;
12 (b) the resulting wetland fills and removals would affect only a portion of each wetland
13 and the impacted wetlands will remain viable and will continue to offer wetland
14 functions and values.

15
16 **RESPONSE TO FACTORS LISTED IN ORS 196.825**

17
18 ORS 196.825(3) requires consideration of certain factors in determining whether to issue a
19 removal/fill permit:

20
21 (a) *The public need for the proposed fill and the social, economic or other public benefits*
22 *likely to result from the proposed fill*

23
24 The statute here (and in all but one of the other considerations) addresses the proposed "fill",
25 distinguishing it from what the statute calls the "project". ORS 196.800(5) defines "fill" as the
26 "total of deposits by artificial means equal to or exceeding 50 cubic yards or more of material at
27 one location in any waters of the state". Thus, the statute limits our consideration here to the
28 public need for fill to construct the pipeline that is proposed to be placed within jurisdictional
29 wetlands.

30
31 NWN asserts, and OOE concurs, that there is a public need for the pipeline as a whole because it
32 meets the EFSC Need for Facility Standard, discussed fully at section IV.B of this order. The
33 proposed pipeline is approximately 60 miles long and must meet applicable standards for safety,
34 land use, geology, and other factors. Although wetland avoidance was a major constraint in the
35 corridor selection study that ultimately led to the proposed route, NWN states, and OOE concurs,
36 that some wetland and stream crossings along the pipeline route are unavoidable. Each specific
37 crossing, some of which involve placement of fill material, is necessary to allow the larger
38 project to move forward.

39
40 (b) *The economic cost to the public if the proposed fill is not accomplished.*

41
42 Without the proposed wetland fills, the project could not be completed because it is unlikely that
43 a 60 mile corridor between the Bacona valve station and the Molalla gate station could be
44 selected that completely avoids all wetlands and stream crossings. Moreover, an alignment that
45 completely avoids wetlands would do so only by increasing the impact on farmed and residential
46 property owners, greatly affected the adjacent property owners.

47
48 (c) *The availability of alternatives to the project for which the fill is proposed.*

1 NWN proposes to bury the pipeline and has demonstrated that some wetland crossings will be
2 necessary. No alternative methods of crossing wetlands that achieve NWN's stated project
3 purpose have been identified. As described fully in the discussion of compliance with the EFSC
4 Need for Facility Standard, OAR 345-023-0020, NWN was required to consider non- pipeline
5 alternatives to the project in its Integrated Resource Plan (IRP), as acknowledged by the Oregon
6 Public Utilities Commission (OPUC).

7
8
9 *(d) The availability of alternative sites for the proposed fill.*

10
11 Alternative sites for the proposed fills are limited by the available locations for the project as a
12 whole. As described in greater detail in Attachment A of this order (compliance with EFSC
13 Land Use Standard, OAR 345-022-0030) NWN must balance requirements for safety, land use,
14 farm land protection, wetland protection, geological hazard, and other factors in selecting a
15 corridor. The project purpose is to connect NWN's Mist gas storage area with the Williams
16 Company's interstate pipeline station at Molalla. Any corridor between these two points must
17 cross streams, wetlands and other waters. As documented in the Attachment A of this order,
18 NWN considered a variety of alternative corridors, but found none that completely avoided
19 wetlands. Moreover, any corridor that affected fewer wetlands would do so by affecting more
20 farm land, residential area, or upland habitat.

21
22 *(e) Whether the proposed fill conforms to sound policies of conservation and would not*
23 *interfere with public health and safety.*

24
25 Sound conservation policies include impact avoidance, mitigation of unavoidable impacts, and,
26 in general, compliance with relevant natural resource policies. The proposed fill is consistent
27 with the sound policies of conservation because the preferred alignment avoids wetlands to the
28 extent practical, and because NWN will restore affected wetlands where avoidance is
29 impractical. Potential project corridors and alignments have been evaluated not just on the basis
30 of public safety but also to avoid valuable wetlands and other waters where possible. The Office
31 of Energy has identified certain wetlands within the proposed corridor that are especially high
32 value habitat, such that complete restoration is unlikely. The site certificate will be conditioned
33 to avoid these wetlands entirely.

34
35 Although some wetlands and waters must be crossed, NWN has proposed subsurface drilling to
36 avoid these waters where practical. Where subsurface drilling is not practical, the site certificate
37 will be conditioned to require restoration of wetland vegetation and hydrology to preconstruction
38 levels. The site certificate will also be conditioned to require restoration of both wetland and
39 upland habitat consistent with ODFW Habitat Mitigation Goals at OAR 635-415.

40
41 The proposed fill will not interfere with public health and safety. As discussed fully in section
42 IV.C of this Order, the project must comply with federal pipeline safety regulations at 49 CFR
43 192. NWN has proposed, and the site certificate will require, design, construction and operation
44 practices that exceed minimum federal regulations. OOE in consultation with the Oregon
45 Department of Geology and Mineral Industries has recommended a finding that the proposed
46 pipeline meets the EFSC Structural Standard OAR 345-022-0020, which requires that the
47 applicant correctly characterize the site in terms of seismic hazard and design the facility to
48 avoid seismic hazards.

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

4
5 Public uses of water include such activities as withdrawals of surface water and groundwater for
6 domestic and agricultural use, fishing, and boating. No existing public use of affected waters of
7 this state will be eliminated or degraded, and no water of the state will be converted to farmland
8 or upland. Streams used for boating, fishing and fish habitat will be crossed by HDD boring.
9 The site certificate will be conditioned to require restoration of other waters. Hence, the project
10 conforms with existing public uses of such waters. Project construction will have only
11 temporary impact on such public uses.

12
13 Land uses designated for adjacent lands are primarily exclusive farm use (EFU). In Attachment
14 A of this Order, we find that the pipeline as a whole complies with the applicable substantive
15 criteria from the acknowledged comprehensive plan and with LCDC rules directly applicable to
16 the facility. The proposed fills, in some cases, are necessary in order to comply with state and
17 county land use regulations that limit siting on EFU land. Therefore the proposed fills are
18 consistent with designated land use on adjacent lands.

19
20 (g) *Whether the proposed fill is compatible with the acknowledged comprehensive plan*
21 *and land use regulations for the area where the proposed fill is to take place.*

22
23 In Attachment A of this Order, we find that the project complies with the EFSC Land Use
24 standard, which requires that the project comply with applicable substantive criteria from the
25 acknowledged comprehensive plan and with LCDC rules directly applicable to the facility.

26
27 (h) *Whether the proposed fill is for streambank protection.*

28
29 The fill is not proposed for stream bank protection.

30 31 **Administrative Rule Standards**

32 Specific sections of OAR chapter 141, division 85 that are relevant to the EFSC application
33 include OAR 141-085-0050 (Fill and Removal Permit Policy), OAR 141-085-0115 (General
34 Compensatory Mitigation Requirements), OAR 141-085-0120 (Compensatory Mitigation
35 Priorities), OAR 141-085-0150 (Minor Project Compensatory Mitigation Monitoring
36 Requirements), OAR 141-085-0155 (Compensatory Mitigation Plans for Non-minor Projects),
37 OAR 141-085-0160 (Compensatory Mitigation Monitoring Requirement for Non-minor
38 Projects), and OAR 141-085-0165 (Additional Requirements Applicable to All Compensatory
39 Mitigation Projects).

40 41 **OAR 141-085-0050 - Fill and Removal Permit Policy**

42
43 OAR 141-085-0050(1) states that:

44
45 Before issuing a permit to place fill in or remove material from the waters of the state, the
46 Director shall determine that the proposed fill or removal would not unreasonably
47 interfere with the paramount policy of this state to preserve the use of its waters for
48 navigation, fishing, and public recreation.

1 The Project does not unreasonably interfere with Oregon's policy to preserve the use of waters
2 for navigation, fishing, and public recreation. Project impacts to waters of this state will be
3 temporary and fully rectified through mitigation and replanting in accordance with the conditions
4 of the site certificate. Major waterways with substantial navigational and other public uses such
5 as the Willamette, Tualatin, and Pudding Rivers will be crossed by HDD boring. Impacts to
6 public recreation related to wetlands and other waterways will be temporary, occurring only
7 during construction.

8
9 OAR 141-085-0050(2) requires the Director of DSL to evaluate the probable impacts, including
10 cumulative impacts, of the proposed activity and its intended use on the water resources by
11 considering the following factors:

12
13 (a) *The environmental and economic consequences of the proposed fill or removal;*

14
15 The environmental consequences of the proposed fill/removal would be temporary, involving
16 disruption of hydrology and vegetation from excavation and backfilling necessary to place the
17 proposed pipeline. As explained previously, wetland and stream crossings have been avoided
18 when practicable through corridor selection and by relying on directional drilling techniques.
19 Where impacts are unavoidable, the site certificate will be conditioned to require restoration and
20 mitigation as proposed by NWN in ASC Attachment J-1. Mitigation measures involve regrading
21 to preconstruction ground elevations and restoration of vegetation cover. Impact on fish that rely
22 on wetland habitat will be minimized by the use of flume or dam and pump techniques. OOE
23 also recommends conditions requiring NWN to monitor the mitigation for success, with
24 contingency measures to ensure the success of mitigation measures.

25
26 Economically, the proposed fills are necessary for the project as a whole to be constructed. The
27 project complies with the EFSC Need for Facility standard because it was shown to be the least
28 cost alternative for NWN to meet its statutory obligation to provide adequate and safe service, in
29 accordance with the Integrated Resource Plan acknowledged by the OPUC.

30
31 (b) *Direct and indirect effects of the fill or removal on submerged and/or submersible*
32 *lands;*

33
34 Direct effects on submerged and submersible lands are expected to be minor and temporary. The
35 only identified navigable water is the Willamette River, which will be crossed by HDD boring.
36 Impacts to other waters have been limited to a few crossings and to construction areas.
37 Construction impacts will be minimized by use of best management practices, such as erosion
38 control measures, to limit downstream sedimentation and other possible indirect adverse effects
39 on water resources. Measures proposed by NWN to minimize and mitigate these effects will be
40 made site certificate conditions.

41
42 (c) *Effects of the fill or removal on the hydraulic characteristics of the fill or removal site*
43 *and surrounding areas, such as water circulation, tidal fluctuation, current patterns*
44 *and flood hazards;*

45
46 No change in the hydraulic character of any stream or wetland is expected. NWN will employ
47 subsurface directional drilling whenever practicable to completely avoid such impacts. At other
48 crossings where trenching is necessary, the work will be conducted to avoid effects on water
49 circulation during and after construction, for example, by regrading the affected area to

1 preconstruction elevations and bypassing the construction site by use of flumes or dams and
2 pumps. Some temporary effects are likely during excavation, but these effects will be short-lived
3 and limited in scope. No permanent effect is expected on circulation, hydraulic characteristics,
4 current patterns, or flood hazard. The site certificate will require implementation of the Grading
5 and Drainage plan submitted as Appendix K-11 of the ASC in response to Washington County's
6 Erosion Control requirements. This plan is designed to ensure that there is no permanent change
7 to the hydraulic characteristics of the site.

8
9 *(d) Effects of the fill or removal on special aquatic sites and refuges, sanctuaries and*
10 *scenic waterways;*

11 The proposed fill and removal will not affect refuges, sanctuaries, or scenic waterways. The term
12 "special aquatic sites" is not defined by DSL but commonly refers to wetlands and other
13 particularly sensitive natural resources. Refuges and scenic waterways identified in the
14 Council's Protected Area Standard, OAR 345-022-0040, include the Tualatin National Wildlife
15 Refuge, the Willamette River and the Jackson Bottom wetland area. Impacts to these sites will
16 be minimized and fully mitigated. At the direction of the U.S. Fish and Wildlife Service, the
17 proposed corridor was selected to avoid the Tualatin National Wildlife Refuge, which was
18 designated a constraint point for project design purposes. The Willamette River Greenway is a
19 protected area that will be avoided by subsurface directional drilling. The Jackson Bottom
20 wetland complex will also be avoided by use of subsurface directional drilling. OOE has
21 recommended a finding that the project as a whole meets the Council's Protected Area standard.

22
23 *(e) Effects of the fill or removal on water supply, water access, public recreation and*
24 *aesthetics;*

25
26 The proposed removal and fill will not interfere with water supply or water access because the
27 applicant has demonstrated compliance with the EFSC Public Services Standard, OAR 345-022-
28 0110, and because OOE recommends a finding of compliance with that standard at section
29 IV.A.12 of this Order. The only use of water associated with the project as a whole is a
30 temporary withdrawal for hydrostatic testing, under a limited water license that WRD will issue
31 if EFSC grants the site certificate.

32
33 The proposed fill will not affect public recreation or aesthetics because the project as a whole
34 meets the EFSC Recreation standard, OAR 345-022-0100, and EFSC Scenic and Aesthetic
35 standard, OAR 345-022-0080, as discussed in sections IV.A.11 and IV.A.9 of this Order.

36
37 *(f) Effects of the fill or removal on water quality and aquatic life and habitats;*
38

39 The proposed fills and removals will not affect water quality because NWN will implement
40 measures to avoid, minimize and mitigate impacts on wetlands, including directional drilling
41 below the surface waters of major waters such as the Willamette, Tualatin, and Pudding Rivers;
42 trenching only during low-water periods; and erosion and sediment control best management
43 practices that will be implemented during and after construction. The site certificate will be
44 conditioned to require NWN to monitor turbidity during construction. When such standards are
45 exceeded, the causal factor will be located and modified. The ASC includes a program to
46 contain bentonite spills that may occur in aquatic resources. The spill containment plan will
47 ensure that any material accidentally discharged will be contained and removed. Toxic and other
48 pollutants will not be discharged. Backfill in trenches will consist of native materials or clean
49 fill material. Any bedding placed in trenches will consist of clean, pollutant-free material.

1
2 Aquatic life and habitat will be temporarily disrupted in smaller streams and wetlands when
3 directional drilling is not practicable. However, those impacts will have a narrow physical range,
4 and aquatic life is expected to return to or recolonize the regraded trenched areas quickly with
5 long-term or permanent effect. The site certificate will be conditioned to require avoidance of
6 wetlands that likely cannot be restored to their original functionality, and to require NWN to
7 restore wetlands where avoidance is impractical.

8
9 (g) *Whether the proposed fill or removal activity adversely affects the health, safety*
10 *and welfare of the people of this state.*

11
12 As explained under ORS 196.825(3)(e), the project as a whole will meet federal safety
13 regulations at 49 CFR 192 ensuring no adverse affect on public safety. The proposed fills and
14 removals will not adversely affect public health, safety or welfare because, with one exception,
15 rivers and streams will be crossed using HDD boring, and because wetlands that are not crossed
16 by boring will be restored as described above.

17
18 OAR 141-085-0050(3) states that:

19
20 The Director shall confer with local government to determine that the proposed fill or
21 removal activity is consistent with the applicable local comprehensive plan and
22 ordinances and Statewide Planning Goals and the other policies of the Removal-Fill Law
23 and these administrative rules before approving permit issuance.

24
25 The applicant has requested an EFSC determination of compliance with Statewide Planning
26 Goals and applicable substantive criteria from acknowledged local comprehensive plans and
27 ordinances, pursuant to ORS 469.504(1)(b). The land use agencies for Washington, Clackamas
28 and Marion Counties have reviewed the ASC commented that the proposed fills and removals
29 comply with comprehensive plan criteria and ordinances that concern wetlands and removal-fill
30 activity.

31
32 OAR 141-085-0050(4) requires that no permit to fill or remove material be issued without a
33 determination that:

34
35 (a) *The project is consistent with the water quality and toxic effluent standards of the*
36 *State of Oregon as administered by the Oregon Department of Environmental*
37 *Quality and would not result in significant degradation of the waters of the state;*
38

39 In contrast to the DSL regulations listed above, this regulation addresses the project as a whole.
40 The project will meet DEQ water quality and toxic effluent standards because a DEQ
41 Construction Stormwater Permit (General Permit 1200-C) is required for construction of the
42 project. Erosion and Sediment Control and Pollution and Spill Prevention Plans will be
43 incorporated into the 1200-C permit. Water generated during activities such as trench dewatering
44 will not be discharged into water bodies. The required DEQ permit is a federal permit outside
45 EFSC jurisdiction.

46
47 Aside from erosion and sedimentation controls, the proposed fills will not result in any liquid
48 effluent. The pipeline as a whole releases no liquid effluent during operation. During
49 construction, NWN will require and will obtain a WPCF permit from DEQ. The Office has

1 recommended in this order that the WPFC permit be issued. The effluent permitted by that
2 permit is not toxic and in fact consists entirely of water used for hydrostatic testing. Its discharge
3 will not result in degradation to any waters of the state. The only other potential water quality
4 concern arises in relation to possible spills of bentonite, a naturally occurring clay mixture used
5 to facilitate drilling. Bentonite is an inert material with no toxicity, but it does increase turbidity
6 in streams. The project design includes contingency plans to respond to possible bentonite that
7 could occur during subsurface drilling operations. OOE observed NWN's response to a
8 bentonite spill during the construction authorized by Amendment 2 to the South Mist Feeder
9 pipeline (1999) and considers these measures appropriate.

10
11 (b) *The project meets historical and archaeological site preservation requirements of*
12 *ORS 390.235;*
13

14 In section IV.A.10 of this Order, OOE recommends a finding that the project meets the Council's
15 Cultural, Historical and Archaeological standard, OAR 345-022-0090. The project corridor has
16 been selected to avoid impacts to known historical and archaeological sites whenever
17 practicable. Where avoidance is not feasible, site certificate conditions proposed under OAR
18 345-022-0090 ensure the preservation of historic and archeological sites.
19

20 (c) *There is no practicable alternative to the proposed fill or removal which would*
21 *have less adverse impact on the water resources of the State of Oregon;*
22

23 The difficulty of finding practicable alternatives to the proposed fills are discussed above in
24 response to ORS 196.825(3)(d). No practicable corridor for transmitting natural gas between the
25 Mist storage area and the interstate pipeline station at Molalla would completely avoid wetlands
26 and other waters. However, NWN was required to select a corridor that balances wetland
27 avoidance with EFSC standards and statutory requirements for farm land protection, public
28 safety and other factors.
29

30 (d) *The project would not adversely affect rare, threatened or endangered species in*
31 *the State of Oregon. If rare, threatened or endangered species could be affected,*
32 *the Director will work with the Oregon Department of Fish and Wildlife, the*
33 *Oregon Department of Agriculture, U.S. Fish and Wildlife Service and National*
34 *Marine Fisheries Service, Endangered Species Office to develop, if possible,*
35 *permit conditions to protect these resources. If such conditions cannot*
36 *adequately protect these resources, the permit shall be denied[.]*
37

38 This requirement is substantially the same as the EFSC Threatened and Endangered Species
39 Standard, OAR 345-022-0070. OOE, in consultation with ODFW, has recommended a finding
40 of compliance with that standard. The applicant has proposed conceptual mitigation plans in
41 accordance with this standard and with the EFSC Fish and Wildlife Habitat standard, OAR 345-
42 022-0060. Under these standards, OOE has recommended conditions in consultation with
43 ODFW that ensure the project will not adversely affect rare, threatened, or endangered species in
44 the state of Oregon.
45

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

1
2 The project will not affect the supply for any municipal water system. The only use of water will
3 be a one-time use during hydrostatic testing, under a limited permit issued by Oregon Water
4 Resources Department. The project will not affect aquatic life and habitat because rivers and
5 streams will be crossed by HDD boring, because any unavoidable impacts to other waters will be
6 temporary in nature, and because affected wetlands will be restored as described above. There
7 will be no significant effects on recreational or aesthetic values because the project has been
8 shown to meet the Council's Recreational and Scenic and Aesthetic standards, OAR 345-022-
9 0100 and OAR 345-022-0080, as described in detail at sections IV.A.11 and IV.A.9 of this
10 Order. The project will not affect economic values of the water resources of the state because
11 rivers and streams will be crossed by HDD boring, and because mitigation plans proposed by the
12 applicant and required by site certificate condition ensure restoration of the functionality of any
13 wetlands that are unavoidably affected. These plans and conditions are fully described in
14 section IV.A.7 of this order, and are listed in section VI.

15
16 (f) *Appropriate and practical steps have been taken which will minimize adverse*
17 *impacts of the fill on aquatic life and habitats*
18

19 As noted above, the applicant has proposed to avoid wetlands within the corridor whenever
20 possible. Rivers and streams will not be affected because they will be crossed by HDD boring.
21 Unavoidable impacts to other wetlands and aquatic habitats will be mitigated under plans
22 proposed by the applicant, reviewed and approved by OOE in consultation with DSL and
23 ODFW, and required by site certificate conditions.

24 25 **OAR 141-085 Compensatory Mitigation Requirements**

26 Under OAR 141-085-0115(1)(a), DSL must "determine whether an applicant's demonstration of
27 impracticability is sufficient." The term "impracticability" refers to the applicant's obligation to
28 demonstrate that there is no practical alternative to the proposed fill or removal that would have
29 less adverse impact on the water resources of the state.

30
31 As noted above, the project for which the removal/fill is proposed is a 60 mile long pipeline,
32 which must necessarily cross through the Tualatin, Willamette and Pudding watersheds and
33 tributaries. It is unlikely that any corridor exists between the Bacona valve station and Molalla
34 that does not include some wetlands, and any corridor that affects fewer wetlands than the one
35 proposed would do so by increasing impact on farm and residential lands. NWN will avoid
36 waters of the state by directional drilling where practical. Where drilling is not practical NWN
37 will minimize impacts by restricting the construction corridor, using flume or dam and pump
38 techniques to maintain stream flow during construction, and by not removing trees in wetland
39 areas if at all possible. Where impacts are not avoidable, the mitigation proposed is on-site and
40 in-kind and is intended to restore the hydrology and vegetation temporarily impacted by the
41 project at each waterway crossing. Therefore OOE recommends a finding that the demonstration
42 of impracticality is sufficient.

43
44 DSL rules at OAR 141-085-0115, 0120, 0150, 0155, 0160 and 0165 set forth the requirements
45 for mitigation plans. NWN has included these plans as part of its joint removal/fill permit
46 application (included in the ASC as Attachment J-1). Proposed mitigation measures are set out
47 generally in Section 5.0 of this document and in the monitoring plan in Section 6.0. The
48 mitigation monitoring plan has been prepared in accordance with the requirements of OAR 141-
49 085-0160.

1
2 As noted above, in 2001 DSL issued a Removal-Fill permit for this project (DSL #24064-RF).
3 The permit cannot take effect until the Council issues a site certificate, pursuant to ORS 469.401.
4 However, DSL’s decision to issue the permit indicates DSL concurrence that the application
5 submitted by NWN meets their application and mitigation rules.
6

7 As noted above, the proposed corridor is 200 feet wide, within which NWN would select an 80
8 foot construction corridor and a 40 foot permanent easement. The precise location of the
9 construction corridor and permanent easement will depend on other applicable regulations and
10 the cooperation of affected property owners along the corridor. Therefore NWN has requested a
11 finding of compliance with applicable DSL regulations for the entire 200 foot width of the
12 proposed corridor.
13

14 Because the exact alignment is not yet known, the mitigation plan proposed pursuant to OAR
15 141 Division 85 requirements is a conceptual plan, with an inventory of expected wetland types
16 that will be encountered and the appropriate mitigation measures for each. NWN has committed
17 to providing the final and more detailed mitigation plan once the exact alignment is known, on a
18 schedule set forth in conditions proposed by OOE in this order. The mitigation conditions for all
19 habitat types, including wetlands, are described in detail under the EFSC Fish and Wildlife
20 Habitat standard at section IV.A.7 of this order. The conditions are listed in section VI of this
21 order under “Fish and Wildlife Habitat Standard”. Because the ODFW Habitat Mitigation Goals
22 require mitigation sufficient to assure no net loss and a net benefit for Category 2 habitat, OOE
23 recommends the Council find that mitigation conditions described in section IV.A.7 assure
24 compliance with DSL mitigation requirements as well.
25

26 Monitoring will include sampling to determine the health and survival rates of replanted
27 vegetation, to identify indications of erosion and bank instability, and to determine the success of
28 special features created or replaced as part of the mitigation plan, such as riffle and pool
29 complexes and fish habitat structures. Monitoring will include plant sampling, visual inspection,
30 and photographic documentation from fixed points for future comparison of site conditions.
31

32 Mitigation measures proposed by NWN, and required by site certificate conditions, provide for
33 in-place, in-kind wetland restoration. NWN has committed to stockpiling and backfilling
34 trenches with native soil, avoiding removal of trees, restoring with native seed mix areas
35 dominated by undesirable vegetation and restoring stream channels to pre-construction
36 condition, including riffle-pool morphology and stream channel substrate. Because NWN will
37 avoid wetlands where practical and will restore the functionality of wetland where avoidance is
38 not practical, and taking into account mitigation criteria that OOE proposes as site certificate
39 conditions, OOE recommends a finding that the proposed mitigation meets DSL mitigation
40 requirements.
41

42 **Additional Findings**

43 OOE recommends the following findings:
44

45 1. Conditions and mitigation requirements must allow for flexibility. The proposed pipeline
46 with approximately 60 miles long, and its exact placement within the proposed 200 foot corridor
47 will necessarily depend on factors and applicable regulations other than wetlands. Therefore the
48 precise impacts cannot be known with certainty until construction begins. In addition, some
49 potential mitigation sites may offer better opportunities than others. Moreover, the cooperation

1 and agreement of land owners is essential to ensure that certain mitigation actions, such as tree
2 planting and wetland enhancement, will remain in place into the future. For these reasons,
3 flexibility is both appropriate and necessary.
4

5 2. Authorization to begin construction is subject to issuance of a U.S. Army Corps of Engineers
6 Section 404 Permit before NWN can disturb wetlands or riparian areas. OOE recommends a
7 condition stating that if the conditions in the site certificate conflict with conditions imposed by
8 the Corps permit, NWN shall consult with OOE and DSL to resolve the conflict before
9 beginning construction.
10

11 3. The applicant has provided a conceptual mitigation plan, and has committed to providing the
12 detailed mitigation plan when the precise alignment is known. This proposed order contains
13 conditions requiring NWN take some critical mitigation steps before leaving a particular section
14 of the pipeline, but will permit NWN to implement final mitigation when construction is
15 completed. Detailed conditions recommended pursuant to the EFSC Fish and Wildlife Habitat
16 standard and listed in section VI of this order require NWN to fully restore affected habitats so as
17 to achieve no loss of wetlands or waters, and to provide on-site and in-kind mitigation.
18

19 **Recommended Conditions for the DSL Permit**

20 OOE recommends that the DSL removal/fill permit be issued with the following conditions.
21 DSL retains the authority to enforce and modify the permit following execution of the site
22 certificate, pursuant to ORS 469.401.
23

- 24 1) All listed Essential Indigenous Anadromous Salmonid Habitat streams and large rivers such
25 as the Tualatin, Willamette, and Pudding Rivers shall be Horizontal Directional Drilled
26 (HDD), unless the essential stream has been pre-approved for an alternative crossing method
27 by ODFW.
28
- 29 2) Turbidity shall not exceed 10% above natural stream turbidities as a result of the project. The
30 turbidity standard may be exceeded for a limited duration, (per OAR 340-41) provided all
31 practicable erosion control measures have been implemented as applicable.
32
- 33 3) Water that is pumped from the pipeline trench during construction will be routed to
34 temporary surface water detention facilities prior to discharge.
35
- 36 4) Along with other temporary erosion and sedimentation controls, filter fencing and straw
37 bales will be used during construction to minimize sedimentation in wetlands and streams
38 and to deter construction equipment operators from venturing further than absolutely
39 necessary into sensitive areas. Effective sediment barriers will be constructed at approaches
40 to stream channels.
41
- 42 5) Erosion control measures shall be maintained as necessary to ensure their continued
43 effectiveness until soils become stabilized.
44
- 45 6) NWN shall use graveled construction accesses to prevent movement of material offsite via
46 construction vehicles.
47

- 1 7) NWN shall stop construction activity if DEQ turbidity limits are exceeded, and take any
2 necessary steps to meet the requirements, such as removing any fine sediments from the
3 construction area or using an alternate trenching technique.
4
- 5 8) Petroleum products, chemicals, or other deleterious materials shall not be allowed to enter
6 the waters. All construction equipment will be refueled at least 100 feet from water bodies or
7 wetland boundaries. All equipment will be inspected and cleaned prior to entering a wetland
8 or stream.
9
- 10 9) The operator shall have an approved spill containment kit on-site at all times.
11
- 12 10) Equipment will not be allowed in the wetland off the mats, at any time. The mats will be
13 inspected prior to placing in the wetland and mats with foreign material will not be used.
14
- 15 11) Pipe will be welded together in sufficient lengths to cross each wetland and stream prior to
16 lowering the pipeline into the trench.
17
- 18 12) Grading will not occur in wetlands, and construction techniques that minimize the
19 compaction and mixing of wetland soils will be utilized. All disturbed areas shall be returned
20 to original ground contours at project completion.
21
- 22 13) Where trenching occurs through open water and emergent soils, vegetation will be replaced.
23 Forested and scrub shrub wetlands disturbed by trenching will be replanted with native trees
24 and shrubs, except in the 10-foot wide maintenance corridor.
25
- 26 14) The upper 12 inches of topsoil will be removed, stored separately from the subsoils that are
27 excavated, and protected throughout construction. Each of these materials may be stockpiled
28 in adjacent upland areas. Topsoil will be returned to the trench surface after construction, but
29 not compacted.
30
- 31 15) Topsoil stored for more than 1 day will be covered with geotextile fabric and moistened to
32 ensure the viability of the plant species present.
33
- 34 16) All exposed soils shall be stabilized immediately after the project's completion, to prevent
35 erosion and sedimentation. If straw is used, it should be composed of species compatible with
36 the site.
37
- 38 17) Stockpiles shall be covered when unattended or during a rain event, by a geotextile material
39 that will prevent erosion but maintain the rootstock;
40
- 41 18) In wetlands and riparian areas, plants and their root stocks will be removed with the topsoil,
42 stored separately from the subsoil, and replaced on top of the backfilled pipeline trench along
43 with the topsoil.
44
- 45 19) Wetlands and riparian areas will be replanted as soon as practicable. Where appropriate,
46 wetland vegetation will be stockpiled by heeling in the roots in wet mulch and then re-planted
47 in the wetland immediately after construction. If the vegetation cannot be replanted within 1
48 day, water and shade will be provided until plants are replanted.
49

1 20) Forested wetlands: If trees area removed, impacts to forested wetlands will be mitigated by
2 both:
3 • restoration of the disturbed construction corridor to forested wetland (beyond the 10 foot
4 wide maintenance corridor) and to emergent wetland (in the 10 foot wide maintenance
5 corridor); and
6 • If trees are removed within the 10-foot-wide maintenance corridor, they shall be replaced at
7 the ratio specified in conditions under the EFSC Fish and Wildlife Habitat Standard,
8 beyond the maintenance corridor.
9

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

- 11 • restoration of the disturbed construction corridor to scrub-shrub wetlands (beyond the 10
12 foot wide maintenance corridor) and to emergent wetland (in the 10 foot wide maintenance
13 corridor), and
- 14 • enhancement of degraded emergent wetland areas near the project area to scrub-shrub or
15 forested wetland to compensate for the conversion of scrub-shrub wetland to emergent
16 wetland within the 10 foot wide maintenance corridor.
- 17 • Emergent wetlands: Disturbance impacts to emergent wetlands will be mitigated by
18 restoration of the disturbed construction corridor to native emergent wetland, where
19 wetlands are dominated by native vegetation before construction. Pasture or agricultural
20 wetlands will be restored as specified by the landowner for continued use as pasture or
21 agricultural land. Other emergent wetlands dominated by non-native or invasive plants
22 (such as reed canary grass) will be restored to pre-construction conditions and equipment
23 will be cleaned before entering other areas to avoid spreading these plants to other areas.
24

25 21) Nursery stock or an ODFW approved native seed mix may be used to revegetate wetlands
26 dominated by native vegetation if it is not possible to revegetate wetlands with the existing
27 rootstock. In all cases, native vegetation and ODFW- approved, certified weed-free seeds will
28 be used. Areas dominated by noxious weeds (i.e. reed canarygrass) shall be re-seeded with an
29 appropriate native seed mix.
30

31 22) Any excavated soil remaining as excess material after backfilling of the pipeline trench in
32 wetlands or riparian areas will be deposited in upland areas away from wetland and riparian
33 areas.
34

35 23) The materials removed from the trench below the topsoil level may also be stockpiled in
36 adjacent upland areas. However, these subsoils will not be placed on top of, nor mixed with,
37 the topsoil previously segregated.
38

39 24) A minimum of two environmental inspectors, one hired by the construction contractor, and
40 one by NWN, will be on site every day during construction in wetland and stream areas.
41 These inspectors will ensure compliance with the goals and standards of the mitigation plan
42 that is approved by OOE in consultation with DSL. They will supervise sit e preparation
43 before pipeline installation, pipeline construction and restoration activities after construction.
44

45 25) To ensure successful mitigation NWN shall monitor the wetland and riparian areas until
46 vegetation has become established and the areas are restored to their previous functions. The
47 criteria for success shall be those specified in the fish and wildlife habitat conditions.
48

- 1 26) Monitoring reports shall be prepared during the first, third, and fifth years following
2 mitigation. The monitoring report shall include:
3 a) Photo documentation from fixed photo points
4 b) Vegetative community monitoring with percent survival of planted species and cover of
5 non-native herbaceous species
6 c) A brief narrative that describes maintenance activities and recommendations to meet
7 success criteria.
8
- 9 27) The Division of State Lands, in consultation with the OOE, retains the authority to
10 temporarily halt or modify the project in case of excessive turbidity or damage to natural
11 resources.

12 **Conclusion**

13 The Office recommends that the Council find that the design, construction, operation and
14 retirement of the proposed 24 inch South Mist Pipeline Extension, taking into account mitigation
15 and subject to the conditions in the Site Certificate and the conditions stated in this order,
16 complies with applicable requirements of OAR 141 Division 85 and ORS 196.800-990.
17
18

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

20 NWN will require the use of water for construction related activities such as horizontal
21 directional drilling ("HDD"), hydrostatic testing of pipe and dust abatement. The water is for a
22 one-time use and will occur for construction only. There will be no annual average use of water
23 during operation of the pipeline.
24

25 NWN proposes to use surface water from three sources. The three sources are: (1) the Lind
26 Reservoir near North Plains; (2) the Tankersley Reservoir near Highway 219 and Burkhalter
27 Road south of Hillsboro near Scholls; and (3) the Willamette River near Wilsonville. The Lind
28 Reservoir and the Tankersley Reservoir are both irrigation ponds. NWN estimated the total
29 water diversion for the Project to be 8.45 million gallons under worst case conditions.
30

31 Approximately 1.1 million gallons of water for hydrostatic testing and 50,000 gallons for HDD
32 will be diverted from the Lind Reservoir near Mountindale, approximately 4,000 feet north of
33 Highway 26 and about 2,000 feet northwest of North Plains. The legal description of the
34 location is: SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 36, Township 2N, Range 3W and NW $\frac{1}{4}$ of the NW
35 $\frac{1}{4}$ of Section 1, Township 1N, Range 3W.
36

37 Approximately 1.6 million gallons of water for hydrostatic testing and 200,000 gallons for HDD
38 will be diverted from the Tankersley Reservoir near Scholls on the east side of Highway 219,
39 south of Simpson Road. The legal description of the location is: NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of
40 Section 30, Township 1S, Range 2W and SW $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 19, Township 1S,
41 Range 2W.
42

43 Approximately 4.3 million gallons of water for hydrostatic testing and 100,000 gallons for HDD
44 will be diverted from the south side of the Willamette River. The location is approximately 2200
45 feet north of the Clackamas and Marion County borders. The legal description is:
46 approximately the center of Section 28, Township 3S, R1W.
47

48 These uses each require a Limited Use Licensing through the Oregon Water Resources
49 Department, which is governed by ORS 537.143 and OAR 690-340-0030. Under ORS 537.143

1 a limited license may be issued to use surface water for any use of short term or fixed duration.
2 Use of water under a limited license does not have priority over any water right authorized under
3 a permit or certificate, is subordinate to all other authorized uses that rely upon the same source,
4 and may be revoked at any time it is determined that the use causes injury to any other water
5 right or perennial stream flow.

6
7 OAR 690-340-0030 requires submission of an application to the Oregon Water Resources
8 Department (“OWRD”), including a completed water availability statement from the local
9 Watermaster. Under OWRD rules, OWRD may approve the license “upon a finding that the
10 proposed water use will not impair or be detrimental to the public interest.” The rule also
11 imposes certain reporting requirements with respect to the use of the water. NWN has submitted
12 applications for Limited Use Licenses to OWRD. The applications are included in the ASC as
13 Exhibit O-1.

14
15 By letter dated November 14, 2001, OWRD stated that it is prepared to issue permits LL490 and
16 LL491, with certain conditions.

17
18 Permit LL490 would permit the use of 2,000 gallons per minute, for a total of 3.3 million
19 gallons, from the Lind and Tankersly reservoirs, for the period from March 1, 2002 through
20 December 31, 2004. Permit LL491 would permit the use of 3.3 million gallons at 2,000 gallons
21 per minute, also for the period from March 1, 2002 through December 31, 2004.

22
23 OWRD noted that the use of water for hydrostatic testing and HDD drilling is a use allowed
24 under ORS 537.143, and that sufficient water is available, as required under OAR 690-340-
25 0030(1)(b) for this short term fixed duration use. OWRD provided public notice as required by
26 OAR 690-340-0030(2), and received no comments related to the issuance of the limited license.

27
28 *Lind and Tankersly Reservoirs*

29 Based on OWRD recommendation, OOE recommends that the limited water license LL491 for
30 use of 3.3 million gallons of water at 2,000 gallons per minute from the Lind and Tankersly
31 reservoirs be issued with the following conditions:

- 32 1. The use of water under a limited license shall not have priority over any water right
33 exercised according to a permit or certificate and shall be subordinate to all other
34 authorized uses that rely upon the same source. The Director (of OWRD) may be
35 prompted by field regulatory activities or any other reason to revoke the right to use
36 water. ORS 537.143(2) and OAR 690-340-0030(6).
- 37 2. NWN shall give notice to the Watermaster, the ODFW district biologist, and OOE not
38 less than 15 days or more than 60 days in advance of using water. The notice shall
39 include the location of the diversion, place of use, quantity of water to be diverted and the
40 intended use. NWN must also contact the ODFW field biologist at least 30 days in
41 advance of using water to determine if any additional requirements are needed to protect
42 fish species.
- 43 3. NWN shall coordinate with the ODFW district biologist regarding the diversion of water
44 into the pipeline and return of water to the stream system to ensure that additional steps
45 are not necessary to protect fish, including the timing of the diversion and the return into
46 the stream system.
- 47 4. At each diversion at which NWN withdraws water, NWN shall install a meter and
48 maintain a record of use, including the total number of hours of pumping, the total

1 quantity pumped and the categories of beneficial use to which the water is applied. The
2 record of use shall be supplied to the Watermaster on request.

- 3 5. Limited License LL491 is effective for the requested use between March 1, 2002 and
4 December 31, 2004. Upon completion of the project, NWN shall submit the record of
5 use to the Water Resources Department.
6

7 Willamette River

8 Based on OWRD recommendation, OOE recommends that the limited water license LL490 for
9 use of 4.3 million gallons of water at 2,000 gallons per minute from the Willamette River be
10 issued with the following conditions:

- 11 1. The use of water under a limited license shall not have priority over any water right
12 exercised according to a permit or certificate and shall be subordinate to all other
13 authorized uses that rely upon the same source. The Director (of OWRD) may be
14 prompted by field regulatory activities or any other reason to revoke the right to use
15 water. ORS 537.143(2) and OAR 690-340-0030(6).
16 2. NWN shall install, maintain and operate fish screening and by-pass devices as required
17 by the Oregon Department of Fish and Wildlife to prevent fish from entering the
18 proposed diversion. The required screens and bypass devices are to be in place,
19 functional and approved by ODFW prior to diversion of any water.
20 3. NWN shall give notice to the Watermaster, the ODFW district biologist, and OOE not
21 less than 15 days or more than 60 days in advance of using water. The notice shall
22 include the location of the diversion, place of use, quantity of water to be diverted and the
23 intended use. NWN must also contact the ODFW field biologist at least 30 days in
24 advance of using water to determine if any additional requirements are needed to protect
25 fish species.
26 4. At each diversion at which NWN withdraws water, NWN shall install a meter and
27 maintain a record of use, including the total number of hours of pumping, the total
28 quantity pumped and the categories of beneficial use to which the water is applied. The
29 record of use shall be supplied to the Watermaster on request.
30 5. Limited License LL490 is effective for the requested use between March 1, 2002 and
31 December 31, 2004. Upon completion of the project, NWN shall submit the record of
32 use to the Water Resources Department.
33 6. The use shall be allowed only at times then the Watermaster has determined the flows of
34 the source stream are sufficient to satisfy existing right, including instream rights. The
35 use shall only be allowed at when ODFW has determined the amount of the diversion
36 will not reduce the flows of the source stream below an amount sufficient to meet the
37 needs of spawning salmon. The point of diversion shall be approximately at the center of
38 Section 28, Township 3S, R1W.
39

40 **3. WPCF permit requirements**

41 NWN proposes to withdraw water from the Tankersly and Lind irrigation reservoirs in
42 Washington county and from the Willamette river in Clackamas county. NWN would use the
43 water for hydrostatic testing and for lubrication during HDD drilling. The water will then be
44 discharged to the bank adjacent to the source, where it will be absorbed into the soil and
45 eventually return to the reservoir or river. A Water Pollution Control Facility (WPCF) permit is
46 required for this type of discharge pursuant to ORS 468B.025 and 468B.050 and OAR Chapter
47 340, Divisions 14 and 45. No discharge to surface waters may be allowed under a WPCF permit.
48

49 No solvents or oils will be added because none are used in the manufacturing, coating or

1 installation of the pipe. NWN will construct an enclosure of straw bales and geotextile material
2 at each discharge point to receive discharge waters. The straw and geotextile will reduce the
3 discharge water velocity for erosion control and will act as a filter to reduce water turbidity.
4 With these measures, the discharge of the water used for testing will not cause contamination of
5 groundwater.

6
7 The three discharge points are:

- 8 1. Lind reservoir: SW ¼ of the SW ¼ of Section 36, Township 2N, Range 3W and NW ¼
9 of the NW ¼ of Section 1, Township 1N, Range 3W.
- 10 2. Tankersly reservoir: NW ¼ of the NW ¼ of Section 30, Township 1S, Range 2W and
11 SW ¼ of the SW ¼ of Section 19, Township 1S, Range 2W.
- 12 3. Willamette River: approximately the center of Section 28, Township 3S, R1W.

13
14 The regulations for WPCF permits are in OAR Chapter 340, Division 45, Regulations Pertaining
15 to NPDES and WPCF Permits.

16
17 The permit requested is required per OAR 340-045-0015:

- 18 (1) Without first obtaining a permit from the Director, no person shall:
 - 19 (b) Construct, install, modify, or operate any disposal system or part thereof or any
20 extension or addition thereto:

21
22 Per OAR 340-045-0005:

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

28
29 A WPCF permit application requires the following exhibits:

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

37
38 NWN supplied the required exhibits (Application for Site Certificate Exhibit DD). Based on the
39 information in that Exhibit, DEQ recommends approval with the following conditions:

40
41 Waste Disposal Limitations

- 42 1. No discharge to state waters is permitted. All wastewater shall be distributed on land for
43 dissipation by evapotranspiration and controlled seepage by following sound irrigation
44 practices so as to prevent:
 - 45 a. Prolonged ponding of waste on the ground surface;
 - 46 b. Surface runoff or subsurface drainage through drainage tile;
 - 47 c. The creation of odors, fly and mosquito breeding and other nuisance conditions; and
 - 48 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 DEQ, 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 DEQ 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 DEQ.
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 DEQ, 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 DEQ. Such approval may be granted by the DEQ 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 DEQ.

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.

6. Standard Operation and Maintenance

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

- 3 a. At all times, all facilities shall be operated as efficiently as possible and in a manner
4 which will prevent discharges, health hazards, and nuisance conditions.
- 5 b. All screenings, grit, and sludge shall be disposed of in a manner approved by the
6 DEQ such as to prevent any pollutant from such materials from reaching any waters
7 of the state, creating a public health hazard, or causing a nuisance condition.
- 8 c. Bypassing of untreated waste is generally prohibited. No bypassing shall occur
9 without prior written permission from the DEQ except where unavoidable to prevent
10 loss of life, personal injury, or severe property damage.

11 7. Noncompliance and Notification Procedures

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

- 16 a. Immediately take action to stop, contain, and clean up the unauthorized discharges
17 and correct the problem.
- 18 b. Immediately notify the DEQ Regional office, so that an investigation can be made to
19 evaluate the impact and the corrective actions taken and determine additional action
20 that must be taken.
- 21 c. Within 5 days of the time the permittee becomes aware of the circumstances, the
22 permittee shall submit to the DEQ a detailed written report describing the breakdown,
23 the actual quantity and quality of resulting waste discharges, corrective action taken,
24 steps taken to prevent a recurrence, and any other pertinent information.

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

28 8. Wastewater System Personnel

29 The permittee shall provide an adequate operating staff which is duly qualified to carry
30 out the operation, maintenance, and monitoring requirements to assure continuous
31 compliance with the conditions of this permit.
32

33 Monitoring and Records

34 1. Inspection and Entry

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

- 37 a. Enter upon the permittee's premises where a waste source or disposal system is
38 located or where any records are required to be kept under the terms and conditions of
39 this permit;
- 40 b. Have access to and copy any records required to be kept under the terms and
41 conditions of this permit;
- 42 c. Inspect any treatment or disposal system, practices, operations, monitoring
43 equipment, or monitoring method regulated or required by this permit; or
- 44 d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance
45 or as otherwise authorized by state law, any substances or parameters at any location.

46 2. Averaging of Measurements

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

49 3. Monitoring Procedures

1 Monitoring must be conducted according to test procedures specified in the most recent
2 edition of Standard Methods for the Examination of Water and Wastewater, unless other
3 test procedures have been approved in writing by the DEQ and specified in this permit.
4

5 Reporting Requirements

6 1. Plan Submittal

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

12 2. Change in Discharge

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

19 3. Signatory Requirements

20 All applications, reports or information submitted to the DEQ shall be signed and
21 certified by the official applicant of record (owner) or authorized designee.
22

23 The Office recommends the Council find that the proposed discharge complies with the DEQ
24 WPCF permitting requirements, subject to the above conditions recommended by DEQ.
25

26 **V. Issues Raised in Public Comment**

27 A. Comments from Groups

28 Several organizations provided group comments on the ASC in response to the notice issued by
29 the Office in October 2001 that the application was deemed complete. These organizations also
30 submitted comments in the Public Hearing. They included the Oregon Farm Bureau, 1000
31 Friends of Oregon, Citizens for Protection of Dairy Creek Valley, Eastview Road Conservancy,
32 and Washington County's Citizen Participation Organization #8 (CPO8).
33
34

- 35 1. Oregon Farm Bureau: states that NWN does not meet ORS 215.275. Specifically, the
36 Oregon Farm Bureau states that ORS 215.275 refers to farm land as opposed to the farm
37 zone. In this context, farm land can be avoided by using public road right of way (ROW).
38 The Farm Bureau states that the facility is not "necessary" under ORS 215.275 because
39 alternative routes that avoid farmland are technically feasible, not locationally dependent,
40 acceptable from a safety point of view, and allowed by federal and state regulations. The
41 Oregon Farm Bureau points out that there are already many pipelines in public ROW that
42 NWN considers safe. The Oregon Farm Bureau states that NWN proposes to site on farm
43 land because of cost alone, which is not allowed. The Oregon Farm Bureau also states that
44 the requirements to mitigate and minimize impact under section (5) of ORS 215.275 cannot
45 be met because all pipelines have forced significant changes in farming practice and
46 significant increases in farm costs. The Oregon Farm Bureau states that EFSC should require
47 NWN to site exclusively in public ROW when traversing the EFU zone.
48

- 1 2. CPO8: states that NWN failed to use a Citizen’s Advisory Committee in the planning stage,
2 and that only 10 of the 62 miles will be in public ROW. States that use of the existing 1989
3 SMF corridor is unfair to farmers who granted easements in 1989 and will not face additional
4 impact. States that placement in public ROW is preferable to putting a second pipeline in the
5 existing corridor. States that the corridor crosses an archeological site. CPO8 also asked
6 what monitoring systems will be required near the Sherman Mill slide area and how local
7 residents will be warned if there is a failure. States that trenching across Dairy Creek affects
8 important fish and wildlife habitat. Also states that a proposed valve station on
9 Mountaindale road is a scenic impact.
- 10
- 11 3. 1000 Friends of Oregon : Challenges NWN’s “macro” analysis. Cites LUBA case “*City of*
12 *Albany vs. Linn county*” which says a facility may have multiple components that require
13 separate analysis and justification. Also states that EFSC cannot determine compliance
14 without knowing how much of the corridor is within the ROW or adjacent to it. States that
15 Washington County AF-20 zone is EFU.
- 16
- 17 4. Eastview Road Conservancy Association: States that bentonite used for HDD boring could
18 affect residential wells. Raises concern that bentonite injected under pressure could enter the
19 aquifer serving this area. Also states that NWN did not adequately consider the Sherwood
20 fault. States that NWN has not addresses impact of HDD boring and staging operations in
21 the residential neighborhood.
- 22
- 23 5. Citizens for Protection of Dairy Creek Valley: States that NWN did not seriously consider a
24 route using Green Mountain road, which avoids Dairy Creek Valley. They state that NWN’s
25 concerns about the steepness of Green Mountain road and Pumpkin Ridge are not valid
26 because NWN crossed even steeper terrain in the 1999 SMF looping project. They state that
27 if the pipeline goes through Dairy Creek valley, it should use the road rather than the 1989
28 pipeline corridor. They also state that the Sunset Highway crossing is not a valid constraint
29 because alternatives exist, for instance Gordon road. Finally, they state that NWN should not
30 cite traffic and other construction impacts as a reason to avoid Gordon Road.
- 31
- 32 6. Farm Bureaus of Washington, Clackamas and Marion Counties (Farm Bureaus) (comments
33 submitted by attorney Christine Cook)These joint comments make several legal arguments
34 against finding that the pipeline complies with ORS 215.275. The comments challenge the
35 “macro” approach, citing *Albany v. Linn County* and state that the pipeline has different
36 physical pieces each of which requires separate analysis. State that NWN should have
37 conducted property-by-property analysis. Point out that the most direct route from Bacona to
38 Molalla crosses urban lands. Points out that NWN’s stated reasons for rejecting non-EFU
39 alternatives include reasons that are not among the six ORS 215.275 (2) criteria. State that
40 NWN stated safety concerns are not consistently applied. State that safety concerns should
41 not justify use of EFU land, since NWN already has pipelines in urban zones and considers
42 them safe. State that NWN cannot reject use of public ROW and must demonstrate why
43 placement in the particular road ROW would be unsafe. Reject 3rd party danger concern
44 because 3rd parties are obliged to avoid damage to the pipeline. State that the 200 foot wide
45 corridor does not specify where the pipeline will be located in public ROW, leaving that
46 decision to a later phase of the process. Argue that NWN should identify where the pipeline
47 will be placed during the public part of the process. Also state that the mitigation criteria
48 required by section (5) should be viewed as an approval criterion and that the Council must

1 first minimize and mitigate by its siting decision. The comments also state that NWN's
2 mitigation plan is incomplete and cite examples of impacts that are not addressed.

3
4 B. Comments from individuals

5 The Office received the following comments from individuals in response to its October 2001
6 notice that the application was deemed complete.

- 7
- 8 1. Ashcom: States that the corridor should be centered on Arndt Rd. Also states that at the
9 intersection of Arndt and I-5, the corridor should follow Arndt Rd. instead of leaving the
10 road and going through EFU land in order to set up for the bore under I-5.
 - 11
 - 12 2. Baker: Stated that NWN did not originally provide proper notification. Also states that
13 NWN should have used Graham's Ferry or Bell roads rather than his property. States that a
14 mapped fault traverses the proposed route. States that the proposed corridor violates the
15 Historic and Cultural standard because his property includes a 19th century barn. States that
16 NWN's planned acquisition of PGE violates the financial assurance standard. States that the
17 proposed pipeline will affect a seasonal creek and springs that have habitat value. States that
18 he did not receive notice from the U.S. Army Corps.
 - 19
 - 20 3. Briggs (by email): Asks what resources the State has to ensure no 3rd party damage, proper
21 construction and monitoring by NWN, and proper restoration of property. States that the
22 pipeline should not go through Sherwood because of third party damage concerns and
23 because of rapid growth in Sherwood.
 - 24
 - 25 4. Buck: Supported the general comments by the Farm Bureau.
 - 26
 - 27 5. Carson : States that they were denied due process and that placing the pipeline along flag-
28 shaped lot would landlock them. Argues that EFSC should re-examine the IRP that was
29 acknowledged by OPUC, and that EFSC should apply OAR 345-023-0040 rather than the
30 "Least Cost Plan Rule". States that the IRP did not meet OPUC criteria and should be redone
31 in light of the recession. States the federal government will require new feasibility studies in
32 light of recent pipeline explosions, and EFSC should not approve the pipeline until those
33 federal studies are completed. States that a 24-inch line is not needed because smaller
34 diameter lines would be sufficient. Also states that they were denied due process because
35 they did not receive the October 1999 NOI notice. States that ORS 215.275 is invalid and
36 unconstitutional because it violates the existing statute. In a separate letter, states that OPUC
37 did not provide them with proper notice of its meeting to review the IRP, that OOE has not
38 provided adequate proof that it sent the Carsons its original October 1999 notice of the NOI,
39 and that placing the pipeline on their property would prohibit them from using their own
40 driveway, landlocking them.
 - 41
 - 42 6. Cowgill-Groner: Raises concerns about safety due to proximity to housing and due to fast
43 growth in Sherwood area. Also concerned about accelerating erosion, impact on septic
44 systems, availability of sites for new wells, destruction of trees and wildlife habitat, and use
45 of property for farming.
 - 46
 - 47 7. Cowgill (Forrest and Doris): Objects to use of EFU land, lack of benefit to local property
48 owners, and safety concerns.
 - 49

- 1 8. Day, Dennis: Does not want pipeline on his property, cites safety concern.
2
- 3 9. Day, Ann: Does not want pipeline on her property when state and county regulations already
4 restrict what they can do on their own property.
5
- 6 10. Dobbin, Ron: States that other projects have promised to prevent damage to farm land but
7 none have done so. Specifically cites crop damage, tile damage and drainage impact,
8 compaction, loss of biological activity in soil, topsoil loss and mixing of topsoil, subsoil and
9 rocks.
10
- 11 11. Dobbin, Vince : States that the pipeline should follow Burkhalter road, which would avoid
12 the proposed use of farm land. Says the pipeline should follow the north side of Burkhalter
13 Road, because that would avoid the winery on the south side and peach orchards also along
14 the south side. Mr. Dobbins also submitted photos of examples where soil was damaged in
15 the past by storing spoils from digging, and of soil damage due to cars being parked on soil.
16
- 17 12. Duyck: States that NWN has not shown that there isn't room in road ROW. States that
18 public ROW is preferable because NWN would have year-round access and the county
19 would maintain the ROW. Says the pipeline should be placed under the road itself because
20 NWN would backfill with rock and improve drainage, and other utilities do not dig under the
21 road itself. Lists adverse impacts on soils and says other utilities may follow this one.
22
- 23 13. Evans: States that safety is not a valid reason to use farmland. States that pipeline
24 construction would be better supervised and inspected in public ROW. States that previous
25 NWN pipeline (the SMF) caused soil damage. States that NWN has not proven its ability to
26 build and operate the pipeline or restore the site. States that gas pipelines are not needed
27 because large power plants can be sited near gas sources and energy can be shipped over
28 electric lines. Cites earthquake concern. States that there are native artifacts in the proposed
29 corridor. States that NWN would remove a stand of mature woods near the McKay creek
30 crossing, which would violate the scenic & aesthetic standards. States that the pipeline
31 would harm wildlife habitat because NWN maintenance and patrol activities would disturb
32 geese in the area. States that the pipeline would preclude planting of orchard trees that they
33 intend to plant in the future.
34
- 35 14. Eyman: Owns the property that contains the Williams Company's Molalla Gate Station.
36 States that Council should require use of public ROW. States that 5 feet is too shallow
37 because farm machines dig farther down than that. Objects to the fact that the presence of
38 the Williams Gate Station has resulted in continued impacts as the Williams facility is
39 expanded. In a separate letter, requests conditions requiring use of public ROW, limiting the
40 working easement to 30 feet, requiring 6 foot depth, and ensuring that the pipeline ROW is
41 limited to gas transmission.
42
- 43 15. Ferrucci: States that NWN plans to remove two rows of filbert trees for the pipeline.
44 Suggests that the pipeline be placed on the other side of the road, which is currently in
45 pasture and would be less affected. States that NWN's has already decided to use the south
46 side of the road due to presence of trees, the slope of the road, and presence of power poles.
47 States that these reasons are not valid because the pipeline could be set back further from the
48 road and because other companies have already succeeding in sharing the ROW with the
49 power poles.

- 1
- 2 16. Finke: Supports the general statements by the Farm Bureau.
- 3
- 4 17. Frahler: States that pipeline should not be placed on EFU zoned land. States that their
- 5 property is unsuitable because it is a sidehill. Also states that potential for above ground
- 6 valves would violate the council's scenic and aesthetic standards. States that if there is an
- 7 odorant-injection station nearby it would affect recreational facilities in the area.
- 8
- 9 18. Frederick: States that pipeline should not be on EFU land, and costs were really the main
- 10 consideration in proposing the corridor. States that NWN should have used the public ROW
- 11 for the new Roy Rogers Road between Scholls Ferry and Sherwood.
- 12
- 13 19. Gates, Barbara: Denies NWN use of property because of effect on drainage, impact on Dairy
- 14 Creek and impact on fish and wildlife habitat at Dairy Creek.
- 15
- 16 20. Gates, Spencer: Supports the general statement by the Farm Bureau.
- 17
- 18 21. Goldmann: States that the corridor would damage drain tile, affecting drainage into Dairy
- 19 Creek and affecting fish and wildlife habitat along Dairy Creek. Also raises concern about
- 20 vibration from railroad, and maintenance of Scoggins water line. Also concerned about local
- 21 traffic impact and native artifacts.
- 22
- 23 22. Hartmann: Opposes the pipeline for safety reasons.
- 24
- 25 23. Hess: Supports the general statement by the Farm Bureau.
- 26
- 27 24. Knapp: Requested information, has plant shipping operation on Needy Rd.
- 28
- 29 25. Knight: States that NWN has not been honest with local landowners. Cites soil damage.
- 30 Asks about NWN's ability to manage pipeline of this size because they have obtained gas
- 31 from a supplier who in turn had recent explosions.
- 32
- 33 26. Kurth: States that the pipeline should follow Graham Rd. (south of Willamette river). States
- 34 that NWN representatives told him they are not allowed to cut a single tree.
- 35
- 36 27. Leavitt: States that the pipeline could follow Dairy Creek Road because it does not have
- 37 other competing utilities. States that the proposed corridor following the 1989 SMF corridor
- 38 bisects his field, maximizing farm impact due to soil damage and crop restrictions. Notes
- 39 that nursery stock and Christmas trees would be restricted and are among the highest value
- 40 crops. States that a previous wetland delineation identified wetlands not listed in the ASC.
- 41 Cites NTSB report stating that flooding was the cause of a 1994 pipeline rupture in Texas.
- 42
- 43 28. Livermore: Does not want pipeline on his property.
- 44
- 45 29. Miles: States that in the section of the corridor along Barlow road, there are no other
- 46 utilities. Cites soil damage, crop restrictions, and other farm impacts.
- 47
- 48 30. Mann: Support general statements of the Farm Bureau.
- 49

- 1 31. McNeil: States that NWN corridor selection study used criteria that are not among the six
2 section (2) factors. Also states that the most direct route from Bacona to Molalla would be
3 shorter than the proposed corridor and would use urban zones. States NWN asserted that a
4 route through urban areas is unreasonable but did not show why they are unreasonable.
5 Points out that pipelines in urban zones are safe, citing the Williams 30-inch line in Gresham.
6 Stated that NWN could use urban area without destroying existing buildings and cites the 72-
7 inch water line as example. States that ODOT would allow use of Hwy 26 to Cornelius Pass.
8 States that NWN growth assumptions in the IRP are no longer valid because of the recession.
9 States that the 1999 SMF expansion went through terrain that is steeper than Green Mountain
10 or Pumpkin Ridge. States that NWN rejected the “avoid EFU corridor” for invalid reasons
11 and did not quantify the difference in farm impact between that corridor and the preferred
12 corridor. States that soil mitigation is too vague and that avoidance is preferred to mitigation.
13 Cites farm impacts and states that they are permanent and cannot be mitigated.
14
- 15 32. Murphy: Raises numerous concerns about the impact on sediment control, riparian
16 protection and streambank protection along Dairy Creek. Dairy Creek floods annually
17 causing erosion, which the pipeline will increase. States that the pipeline will cause removal
18 of shade and filter buffers. Notes that NWN already has the 1989 SMF corridor, which is
19 preferable to the alternate route along the stream, but says use of public ROW is best. Also
20 states that bore pad for the Dairy Creek crossing will cause loss of tree cover, notes that large
21 trees are not allowed over the pipeline.
22
- 23 33. Pettijohn: Objects based on property value concerns and safety concerns.
24
- 25 34. Robb: Objects to construction outside public ROW.
26
- 27 35. Roshak: States that pipeline should use public ROW, cites farm and soil impacts.
28
- 29 36. Rowell: States that NWN is only trying to save money by using cheap farm land rather than
30 expensive urban land. States that pipeline should use public ROW.
31
- 32 37. Rumgay: Supports general statement by the Farm Bureau. Cites property specific impacts
33 such as loss of trees, restrictions on pasture and fencing, loss of income.
34
- 35 38. Scholls Grange: Opposes the pipeline and states that it must be in public ROW.
36
- 37 39. Schulmerich, Jerry & Jan: Supports general statements by the Farm Bureau.
38
- 39 40. Schulmerich, Al & Mary: Pipeline should use Burkhalter Rd. Says that NWN’s stated
40 reasons for avoiding Burkhalter are invalid because existing peach orchards are not a primary
41 operation, and because NWN should cross the wetlands along Burkhalter in order to avoid
42 farm land.
43
- 44 41. Smith: Raises safety concern, rapid growth and demand for other utilities, and traffic.
45
- 46 42. Stahely: Objects to the pipeline using their property in order to avoid the chemical
47 contamination caused by Columbia Helicopter.
48
- 49 43. Tabert: States pipeline should use public ROW, cites farm impact and property value.

- 1
2 44. Tidball: States that NWN should use existing utility corridors, rejects NWN position that 3rd
3 party damage pose a safety risk, says the proposes corridor on Tooze and Pleasant Hill roads
4 will waste recent road repairs done by the county, says high pressure pipelines are a safety
5 risk, and asks if there is a percentage of property owners who must object to the facility in
6 order to disqualify it from approval. In a separate letter, states that the pipeline should be
7 placed near population centers.
8
9 45. Turner: States that the pipeline should be in the Heinz Rd. Public ROW, rather than in
10 adjacent farm land.
11
12 46. Twombly: Supports the general comments by the Farm Bureau.
13
14 47. Umland: States that pipeline will harm property value, also states that she was told the actual
15 pipeline alignment and asks why property owners are not informed.
16
17 48. Vanasche: NWN should use public ROW, as Tualatin Water district did in 1996 when it
18 built a 72-inch diameter water line along highway 8. States that this was lower cost when the
19 value of present and future crops was considered. Says that NWN would backfill the road
20 and improve drainage. Says an independent inspector should be appointed by the Farm
21 Bureau, crop damage should cost NWN triple damages, and crop value should be based on
22 the most valuable crop that could potentially be grown, rather than on current use. States that
23 the pipeline should be in urban zone since gas is an urban service.
24
25 49. VanDomelen: States that pipeline should not be in EFU zone even on roads. Also states that
26 terrorist threat poses safety risk.
27
28 50. Whitaker: Does not want gas line on her property.
29
30 51. Whitely: Supports the general comments by the Farm Bureau.
31
32 52. Wong: Opposes pipeline, even on roads. Cites safety and property value.
33
34 53. Zarzana: States that her property includes a pond, trees and habitat that the pipeline would
35 affect, and that the pipeline should be placed on public property.
36

37 C. Comments from agencies
38

- 39 1. Washington County: Supports Farm Bureau issues. States that the application appears to
40 balance the competing goals in rules, statutes and the county code. States that a 200 foot
41 wide corridor is inconsistent with normal county land use practice, and allows the utility to
42 make decisions that would normally be part of the county's review. States that the permit
43 should be issued for a more definitive location, which should be in public ROW as much as
44 possible. Washington County also provided 9 recommended conditions, which will be
45 addressed in the Land Use attachment and in section VI of this order..
46
47 2. Marion County: Provided comments generally agreeing with NWN's reasoning regarding
48 compliance with ORS 215.275 and OAR 660 Division 033. Concluded that the proposal
49 conforms with the Marion County Zoning Ordinance, including the county's

1 floodplain/Willamette Greenway Ordinance. Did not recommend any conditions, other than
2 the commitments in NWN's application. In a separate letter, Marion County essentially
3 quoted the letter submitted by Scott Ashcom of the Oregon Nurseryman's Association stating
4 that the section of the pipeline along Arndt Rd. should be confined to road right of way.
5

- 6 3. ODOT: Has no objection to the ASC. ODOT is prepared to issue construction permits to
7 NWN for all work in state highway ROW, predicated on detailed construction plans.
8
- 9 4. Water Resources Department: Is prepared to issue required water rights, subject to conditions
10 which OOE will address in section IV.D.2 of this order..
11
- 12 5. Sherwood School Board: Clarified distance between schools and proposed pipeline corridor.
13 Requested assurance that safety and scheduling of school bus service is not compromised.
14
- 15 6. Jim Johnson, Oregon Department of Agriculture (ODA): States that ORS 215.275 does not
16 require consistency with ORS 757.020, and that too much of NWN's analysis of ORS
17 215.275 is based on the Need analysis they made to the PUC. ODA points out that in some
18 locations the corridor is centered on roads with one side zoned EFU and the other side zoned
19 non-farm. ODA recommends that the pipeline be sited within the road as a first choice, and
20 in public right of way adjacent to the road as a second choice. ODA recommends that the
21 Agricultural Mitigation Plan be considered a foundation for conditions to minimize and
22 mitigate required by sections (4) and (5) of ORS 215.275. ODA's recommendations are be
23 addressed in the Land Use section of this order..
24

25 D. Comments Submitted During the Public Hearing, August 6 and August 12, 2002

26

- 27 1. McNeil (Heritage Plantation): NWN has not committed to specific easement width. DPO
28 does not specify where laydown areas may be and how much EFU land they may affect.
29 Conditions should restrict construction to July and August in EFU zone. Exact location
30 of valve station near Aurora Airport not specified. Possible valve near Corey road could
31 be visible from Dairy Creek Road. NWN could use U.S. highway 26 west of Cornelius
32 Pass Road without violating any ODOT restrictions. NWN did not seriously consider
33 many of the reasonable alternative corridors that were suggested. Restrictions on future
34 crops are an adverse farm impact. NWN 16-inch pipeline resulted in serious crop and
35 soil damage. FBI has issued alert specifically for natural gas facilities. NWN should
36 have considered other US 26 crossing locations, even if it only reduces EFU impact by a
37 small amount. NWN corridor is based on non-215.275 factors because the original
38 corridor selection study was based on them. Adverse farm impacts are not temporary and
39 cannot always be mitigated. NWN should have considered alternative crossings of
40 Tualatin Valley highway – the only reason that crossing is not zoned urban is because
41 farmers have fought to maintain EFU status and they should not be penalized for that.
42 The increase in length between the proposed corridor and the NOI "balanced" corridor
43 does not reduce farm impact because NWN intends to use farmland adjacent to road
44 right-of-way (RROW). NWN concern about third party damage is actually greater in
45 farm field because of farmers digging. According to county road department, road fill is
46 a suitable base for a pipeline. Traffic impacts are not a valid concern. NWN need for
47 suitable bore sites is not valid because NWN could have changed route to avoid crossings
48 altogether. Macro approach incorrect; NWN should analyze on a property-by-property
49 basis. NWN pipeline will eventually lead to lateral lines, further affecting farms. OOE

1 conclusion that pipeline must be located at intersection with existing 16-inch line on
2 Mountindale Road is incorrect because there are other locations where the new pipeline
3 could tie into the existing one. Wetlands on either side of Burkhalter Road are not
4 protected because they are ODFW Habitat Category 4 or 6. Bell or Graham Roads could
5 be used because they are no worse in terms of sidehills and stability than existing corridor
6 along N. Dairy Creek Road. Use of Zimmerman and Heinz Roads would not affect farms
7 if NWN used RROW or the paved surface. Suggested a route entirely following roads in
8 the area north of Tualatin Valley highway crossing. The most direct route would actually
9 cross more urban zones than the proposed corridor does. Siting within RROW does not
10 encumber property. Siting within RROW would provide more workspace without
11 affecting farmland. Eighty-foot construction easement not needed because Phase III
12 pipeline was built using as little as 40 feet in certain places. Suggested places where
13 localized adjustments to the corridor would reduce amount of farmland crossed. Made
14 several additional arguments for use of RROW, including fewer trees removed in riparian
15 zones, fewer orchard trees removed, less property impact. Use of RROW under paved
16 surface would eliminate concerns given along Burkhalter and Klupenger Roads. Even
17 use of unpaved land in RROW is an adverse farm impact because of irrigation and
18 drainage lines. Loss of customers from inability to meet orders. Pipeline on farm
19 disrupts planned rotation. NWN mitigated poorly in 1989, and farmers should not be
20 asked to give a second chance. Lack of specific information from NWN makes it
21 difficult for citizens to participate in accordance with Goal 1. Provided photos showing
22 that stored pipe appears to be rusted, and coating has worn off.

- 23
- 24 2. Washington, Clackamas and Marion Co. Farm Bureaus (represented by Christine Cook):
25 Interpretation of 215.283(1)(L) is incorrect. Factor (c) in the six 215.275(2) factors states
26 that if existing ROW is available, then the existing ROW should be preferred over EFU
27 land, but does not justify increasing width of existing ROW in farm land. Provides legal
28 arguments that EFSC must minimize use of EFU land before relying on mitigation.
29 Notes that EFSC's own rules list avoidance as the preferred form of mitigation. NWN
30 objections to RROW not valid for most rural roads because few competing utilities.
31 Preferred corridor is flawed because it is based on the balanced corridor, which came
32 from a study that used non-215.275 factors. Pipeline should be placed under subsurface
33 of roads. AIMP does not set forth objectively verifiable obligations on NWN's part.
34 AIMP does not compensate for loss of customers due to farmers' inability to fill orders.
35 Some reasons give by NWN for rejecting RROW segments are not valid under 215.275.
36 OOE should have consulted with ODA and DLCDC on proper interpretation of ORS 215.
37 The fact that farmers have been successful in preserving farmland should be used as a
38 reason for saying that pipeline "must" be in farmland.
- 39
- 40 3. Skou: property value, flooding, general safety.
- 41
- 42 4. Green: property value.
- 43
- 44 5. Schulmerich (2): NWN should use Burkhalter Road; NWN could cross the wetland along
45 Burkhalter Road. NWN's stated reasons for not using Burkhalter Road (wetland, rocks
46 on north side) are not adequate.
- 47
- 48 6. Gartska: general safety (corridor is ¼ mile from a school and along a school bus route).
- 49

- 1 7. Ward, Jenni (3): Supports NWN preferred route in Heinz-Zimmerman area. Corridor along
2 property line has less impact on farm than a corridor adjacent to ROW. Adverse impacts
3 include drain tile, driveway used for shipping, loss of tree stock, loss of customer base,
4 irrigation. Also, soil along the back line is not as good as the soil along the ROW.
5
- 6 8. Ward, Jack: advocates a “public utility corridor” along the existing BPA right of way.
7
- 8 9. Adams-Busching: property value, removal of trees, impacts could be avoided by using
9 ROW.
10
- 11 10. Wilks: property value, adverse impact on nursery stock.
12
- 13 11. Delfino: pipeline should use ROW.
14
- 15 12. Gassner: NWN should reduce its rates.
16
- 17 13. Kenner: general safety, NWN should have a better emergency plan in case of accident.
18
- 19 14. Zarzana: general safety.
20
- 21 15. Murphy: Alternate route has adverse impacts on Dairy Creek streambank (increased erosion,
22 removal of vegetation).
23
- 24 16. VanDomelin, Lee: Adverse farm impact (drain tile, crop limitations). NWN should use
25 ROW. General archeological concern, general earthquake concern.
26
- 27 17. Robb: pipeline should use ROW.
28
- 29 18. Oregon Farm Bureau (OFB): NWN has not met ORS 215.275 because alternatives to EFU
30 are technically feasible, locational dependence does not apply because ROW is available,
31 nonfarm land is available, placement under the road is safe because 3rd party dig-ins are
32 unlikely directly under the road, existing pipelines in urban zones are considered
33 acceptably safe, use of ROW does not conflict with other regulations. NWN has not met
34 ORS 215.275(3) because cost appears to be the sole reason to use EFU land. NWN has
35 not met ORS 215.275(5) because pipeline will force significant increase in cost of farm
36 practices.
37
- 38 19. Varin: general safety, limitations on use of property, NWN should use roads.
39
- 40 20. McFarland: pipeline would be too close to house, removal of fruit trees, previous utility
41 installation had major impact.
42
- 43 21. Ferrucci: Adverse impact on farming (removal of orchard trees, orchard trees take years to
44 grow back if at all), NWN could use ROW or unfarmed land on other side of road.
45
- 46 22. Smith: Adverse impact on farming (removal of orchard and other crops), NWN should use
47 ROW.
48

- 1 23. Welle: Inadequate notice, general safety, boring could affect streams and property value;
2 pipeline will warm streams and habitat. NWN should be more specific about pipeline
3 location. Pipeline adds to global warming. Use of private easements violates Measure 7.
4 Incorporates previous testimony from earlier phases of review.
5
- 6 24. Paradis: adverse impact on potential for commercial development, possibility of aggregate
7 mining.
8
- 9 25. Vanasche, Florence: Previous pipeline adversely affected soils and farm productivity.
10
- 11 26. Guttman: pipeline should use ROW, pipeline should be placed under the road, potential for
12 second pipeline in the future.
13
- 14 27. Meyer: potential for second pipeline in the future, general property impact, general safety
15
- 16 28. Armstrong: Property value, pipeline should use ROW.
17
- 18 29. Cowgill (2): adverse impact on farming (soil impact, drainage, crop restrictions). General
19 safety. Sherwood area is growing too quickly for pipeline and will have many competing
20 utilities; pipeline could affect private septic and wells; pipeline could impede ability to
21 bring city water.
22
- 23 30. Baker: Pipeline should use ROW, adverse impact on farming (crop restriction, interruption
24 of long term contracts), proposed route would bisect field and would force a significant
25 change in farm practice and cost, impact on stream, potential impact on historic building
26 and historic oak trees, five foot depth is not sufficient to allow subsoiling, disagrees with
27 assessment of NWN's financial assurance, did not receive notice from U.S. Army Corps
28 of Engineers, ninety percent of corridor should not be in EFU zone, and 200 foot corridor
29 is not consistent with normal land use.
30
- 31 31. Marcuvitz: Supports NWN preferred route in Heinz-Zimmerman area. Placement along
32 road ROW will impact farm more than placement along property line. Use of Heinz
33 Road would waste and ruin recently paved road, cause permanent crop loss, irrigation
34 outlets close to road would be interrupted, would interfere with ability to put farm stand
35 along side road. Corridor along Heinz RROW also less safe than corridor along property
36 lines.
37
- 38 32. Hess: Agriculture Mitigation Plan inadequate, imported soil will still not properly replace
39 native soil, bore sites are especially high impact, temporary laydown area impacts
40 underestimated, NWN should use ROW, contamination potential from Columbia
41 Helicopter is overstated, property may contain some native artifacts.
42
- 43 33. Miles: Lists 16 separate potential adverse impacts on farming (including: crop loss, loss of
44 customer base, crop restrictions, drain tiles, mixing soil type, interference with
45 subsoiling, disruption from future NWN maintenance activities, building restrictions,
46 introduction of rocks, restrictions on buried power lines used for farming, noxious weeds,
47 compaction). Notes that there is public ROW between pavement and NWN's requested
48 easement.
49

- 1 34. Rungay-Button: NWN should use RROW. General safety, property values, farm impacts
2 (including crop restrictions, drainage, loss of old trees for shade and buffering, security
3 concerns, loss of farm income, disruption of farm practices). Mitigation plan too
4 undefined. NWN could use existing Williams Co. easement.
5
- 6 35. Carson: Alleges failure to notify during NOI phase. HB 2865 unconstitutional. PUC-
7 acknowledged IRP is an inadequate basis for finding need. General safety, landlocking
8 of property, states that the order should specify which alternate corridor NWN should use
9 rather than leaving that decision up to NWN. Alleges OOE changed and misrepresented
10 previous comments, and that comments were not provided to EFSC.
11
- 12 36. Spears: general safety, requests minimum 125-foot distance from any residence.
13
- 14 37. City of North Plains: Prefers Milne Road option so that pipeline would not be in area slated
15 for possible expansion of UGA.
16
- 17 38. Frahler: Kruger Road segment unsuitable because it may be included in expanded Sherwood
18 UGA. NWN should use ROW. Property is on a sidehill, which could stress the pipeline
19 during a landslide, two-hundred-foot corridor not consistent with normal land use,
20 odorant might affect nearby recreation facilities if there is a leak, if odorant is not used
21 then what will warn of leak. Suggests that a route following Kruger Road and 99W is
22 better.
23
- 24 39. Brinkly: repeated generic Farm Bureau letter of November 2001.
25
- 26 40. Gray: NWN should use ROW. Pipeline might affect springs and artesian aquifers.
27
- 28 41. Scholls Grange: NWN should use ROW.
29
- 30 42. Merriman: adverse impact to farming (loss of trees), general safety concern.
31
- 32 43. Umland: NWN should use ROW along Elwert Road. Already has powerline on property.
33
- 34 44. Whitely: NWN should use ROW. Using Parrett Mtn could increase erosion. Challenges
35 statements in NWN letter of June 28, 2002, that property was cleared recently and is now
36 in vines, maples and poison oak. States that NWN should remove the pipeline after its
37 useful life. Proposed easement will leave useless 25-foot strip of land between easement
38 and road. Lists other adverse impacts on farm and forestry.
39
- 40 45. Lockwood, Thomas: Adverse impact on farming (loss of mature trees, loss of regular
41 customer through inability to meet contract).
42
- 43 46. Lockwood, Mary: NWN should use major highways. Siting across fields raises the risk of
44 unintentional or intentional third party damage. Adverse impact on farming (crop
45 restrictions)
46
- 47 47. Brown: NWN's current and proposed use of strain gauges is inadequate and NWN should
48 use inclinometers instead. URS investigation of Sherman Mill Slide was inadequate.

1 NWN reliance on strain gauges is not required by conditions. Strict limits on time of
2 road closures should apply, along with effective enforcement.
3

4 48. Kurth: Williams Co. bankruptcy could impact NWN financial assurance. Challenges NWN
5 reasons for not using Klupenger Road.
6

7 49. Schroeder: Adverse farm impacts (loss of acreage, loss of mature stock, restrictions on farm
8 buildings). Competing utilities are above ground.
9

10 50. Henden (2): general safety; small farms are less able to recover from financial loss due to
11 pipeline; prefers NWN's preferred route in Heinz-Zimmerman area. NWN
12 communication with property owners is poor.
13

14 51. Gates: pipeline should be in urban areas.
15

16 52. Bish: opposes siting along right of way for general safety reasons and property value
17 impacts, and heavy traffic along Scholls and River Roads.
18

19 53. Bish, Jon: Pipeline along River and Scholls Ferry Road would be within 35 feet of two
20 houses that may be eligible for Registry of Historic Properties.
21

22 54. Claeys: NWN should not use Davis Road because it is not really a road.
23

24 55. Oregon Dept. of Agriculture (Jim Johnson): Interpretation of 215.283(1)(L) is incorrect. In
25 split zones, NWN should use non-EFU side or show why they cannot. Third party dig-in
26 concern not valid where rural roads have few or no existing utilities. Crop restrictions are
27 a significant adverse impact on farming. "Farm land" should be considered land that is
28 capable of crop production, as opposed to land currently farmed. Also, EFSC should
29 consider whatever types of crops might be grown there, not just what is there now.
30 Agriculture Mitigation plan needs broad conditions to account for impacts that may not
31 become evident until the future. Site Certificate should specify exact pipeline location.
32

33 56. Cook: Has Native American artifacts on property; traffic congestion; water wells with
34 submersible pumps could short out because of pipeline; NWN should use RROW;
35 adverse farm impacts (drainage, irrigation, crop restrictions, soil impacts); deep
36 subsoiling by farmers could damage pipeline; NWN may not always install pipe at 5 feet;
37 contouring by farmers will change pipeline depth; pipeline would force change in farm
38 practice (use of explosives); potential for gas leakage; earthquake potential; potential for
39 cars to hit above ground valves; property value; NWN should be liable for actions by
40 contractors; comment period too short; OOE does not do enough investigation and does
41 not reply to comments.
42

43 57. Leavitt (Harmony Oaks Farm): IRP is invalid because of recent information that the energy
44 market was manipulated; Dairy Creek RROW was not considered; Dairy Creek RROW
45 should not have been rejected because it has no or few competing utilities; NWN real
46 reason for avoiding RROW is solely cost; interpretation of 283(1)(L) is wrong and (1)(L)
47 really permits only placement within RROW; crop restrictions are a significant impact on
48 farming.
49

- 1 58. Kieling: Supports NWN Preferred route along property lines in Zimmerman Heinz area.
2 Pipeline along Heinz Road would affect existing infrastructure.
3
- 4 59. Friends of Parrett Mountain (Burns, Bennett, Briggs, represented by James Smith of Davis
5 Wright Tremaine): Parrett Mountain area is unsuitable for pipeline because planned
6 future urban development makes 3rd party damage likely. Pipeline should not cross
7 Sherwood fault; elevation changes in Parrett Mountain area increase risk. Pipeline could
8 interfere with Sherwood's ability to bring in city water to Parrett Mountain.
9
- 10 60. Schach-Anderson: Agricultural mitigation plan is inadequate because it is not binding, is not
11 negotiated with property owners, will not be monitored. Damage to soil may not be
12 apparent for years. Temporary workspace will not be restored to as-found condition.
13 NWN use of condemnation is unfair.
14
- 15 61. CPO#8: Comment period on DPO too short. NWN should use public RROW. Third party
16 damage argument is invalid because many roads have no competing utilities. NWN is
17 not consistent in determining where RROW is acceptable and where it is not ("consistent
18 mental algorithm"). For Archaeology standard, NWN should do controlled excavation
19 before construction to evaluate significance of site. NWN should install additional
20 inclinometers in Sherman Mill area. A warning system should be established to alert
21 local residents of explosion. Asks about location of possible valve near Corey Road.
22 Above ground valve stations should be sited and landscaped to protect scenic beauty of
23 the area.
24
- 25 62. Buel: Adverse farm impacts (tile, drainage). No assurance that construction crews will keep
26 NWN promises to address farmers' concerns and mitigate impacts. Pipeline is
27 encumbrance on property. NWN should consider using no construction zone, cluster
28 construction zones, several smaller pipes, using freeway median.
29
- 30 63. Salzswedel: NWN should use RROW.
31
- 32 64. Ashcom: Interpretation of 215.283(1)(L) should be within RROW.
33
- 34 65. Vanasche: NWN should use land within UGB or under paved surface. Use of paved surface
35 provides easy access for maintenance and construction. Adverse farm impacts (crop
36 reduction, soil mixing, compaction, erosion, drainage, tile, irrigation, future crop
37 restrictions, rocks, loss of regular customers through inability to meet contractual
38 obligations). Property value impact. Two-hundred-foot corridor is too uncertain. The
39 assertion that roads built on fill are unsuitable for pipeline is false, because road fills are
40 decades old and settlement has already occurred, and below 8 feet there is native soil.
41 Third party damage is not a valid concern because there are few competing utilities.
42 Davis Road should not be used because it is a paper road only. Farmers are not likely to
43 call for locates in fields. If EFU land is used, minimum depth should be 8 feet.
44
- 45 66. Yazzolino: NWN should use RROW. Farm impact includes loss of fencing to keep out deer
46 and elk. Crop is Kiwis, which require special trellises and guy wires. Across the road is
47 better, because there are only wheat and telephone poles.
48

- 1 67. VanDomelin, Melvin: Alternate segment under Dairy Creek should not be used, may
2 involve archaeological site. NWN should stay in corridor for existing 16-inch line.
3
- 4 68. Meeker: Adverse farm impacts (soil mixing, compaction, drainage, tile). Mitigation will be
5 inadequate because contractors will not keep NWN assurances. Use of Heinz Road
6 would cause loss of old trees.
7
- 8 69. White, Simpson: adverse impact on farm (soil impacts, easement restrictions). NWN should
9 use RROW.
10
- 11 70. Pacific Rock: No agreements in place to ensure no adverse impact on aggregate mining.
12
- 13 71. Staehely (represented by Blount of Landye Bennett Blumstead LLP): corridor goes through
14 contamination from Columbia Helicopter. Remediation (natural attenuation) will take
15 25-30 years. Pipeline could spread contamination and could affect Troutdale aquifer.
16 NWN's appraiser for this property has conflict of interest. NWN should use original
17 route that did not affect this property.
18
- 19 72. Franich: Pipeline will disturb present condition of surrounding farm area. NWN has entered
20 property without permission.
21
- 22 73. DLCD: Interpretation of 215.283(1)(L) is incorrect; it only permits pipeline within RROW.
23
- 24 74. Eastview Road Conservancy (ERCA), (represented by John Junkin of Bullivant Houser
25 Bailey): Council should apply WCC 403-4.19 standards regarding significant adverse
26 impacts on neighboring properties, unduly conflicting with character of area, and whether
27 it is in the public interest to allow the development. Council should either approve only
28 the preferred corridor along Elwert Rd., or impose criteria for NWN to make the choice
29 (as matter of due process). States that if ASC identifies one corridor as preferred, then
30 that corridor should be the one selected. If there is no clear preference, then human
31 factors should be used to make the choice. Potential for HDD bore to impact domestic
32 wells (due to possible bentonite leakage during bore).
33
- 34 75. Lundy: NWN should use east side of Elwert Rd because it only affects three property
35 owners as opposed to eight, and because there is less objection on east side.
36
- 37 76. Butler (represented by attorney John Shadden): NWN should use RROW. Adverse farm
38 impact (soil compaction, disruption of farm operation, loss of income). NWN could use
39 existing right of way for its own service line. Pipeline goes near old houses with
40 potential historic value, and old rare landscaping.
41
- 42 77. Mann: Adverse farm impact (future crop restriction). Reiterated OFB letter of November,
43 2001. Impacts to this property are higher because proposed corridor follows property line
44 on two sides.
45
- 46 78. Goldmann: adverse farm impacts (drainage, tiles). Railroad vibration could damage
47 pipeline. Pipeline could interfere with maintenance of existing water line. Suggests
48 alternate route on Hornecker Road. NWN should use RROW. Pipeline should be within
49 UGB. Archaeological objects may be present.

- 1
2 79. Pettijohn: property value, general safety.
3
4 80. Twombly: Reiterated Oregon Farm Bureau's November 2001 letter.
5
6 81. Duyck, Larry: The corridor is flawed because it is based on studies that included criteria that
7 are not in the standards. Adverse impacts on farming (crop destruction, planned rotations
8 disrupted, soil impacts, rocks, drainage, tile, restrictions). NWN position that RROW
9 should be avoided because of third party damage is invalid because pipeline could go
10 under paved surface. Above ground valves are potential target for terrorists or vandals.
11
12 82. Buck: NWN misrepresented its plans to property owners. Forcing property owners to give
13 easements is unfair. Property value impacts. Compensation for easements inadequate.
14 General safety. Safety regulations for farmland not as strict as they are for urban land.
15 Farmers cannot farm over the easement but must still maintain it.
16
17 83. Flint: EFU land should not be used for urban use. NWN reasons for not using RROW do
18 not apply. Restrictions on future uses for homes. General safety. States that current
19 safety regulations are inadequate, pipelines prone to weld failures and defect.
20 Destruction of large nut-producing trees that cannot be replaced. Adverse farm impacts
21 (tiles, drainage). Archaeological artifacts may be present. NWN should use RROW.
22
23 84. Stobbe: EFU land should not be used for non-farm use.
24
25 85. Knight: NWN should use RROW. NWN concern about third-party damage in RROW is
26 invalid because rural roads have few competing utilities. Adverse farm impact (easement
27 and crop restrictions). Pipeline reduces future utility of the land for UGA. General
28 safety. Compliance with safety regulations does not provide adequate safety. NWN
29 should have full-time archaeologist present.
30
31 86. Roshak: Adverse farm impacts (crop restrictions, tiles). Pipeline should be 8 feet deep.
32 Farmland has more underground infrastructure than RROW. NWN should use RROW.
33 NWN should reroute pipeline through a nearby nursery that is covered with rock. NWN
34 should have used new corridor for Roy Rogers Road.
35
36 87. Valley Estates Water District (Nancy Cook): Favors NWN preferred route in Zimmerman
37 area. NWN Alternate route would affect the district's well.
38
39 88. Hill: NWN should use RROW. Proposed route takes unnecessary twist through farmland at
40 Elwert and Edy Roads.
41
42 89. Fields: Wells could be affected by bentonite used in HDD boring.
43
44 90. Washington County Farm Bureau (Terry Peters): Reasonable alternatives to EFU land were
45 suggested, but NWN made no effort to make them work. NWN reasons for avoiding
46 RROW do not apply because rural roads have few competing utilities. Adverse farm
47 impacts (crop and easement restrictions). EFSC should consider potential future
48 agricultural uses, not just current agricultural use. Even pipeline in the shoulder of the
49 road is unacceptable; pipeline should be under paved surface. NWN is providing

1 misinformation about easement width. Concern about lateral line in the future. Pipeline
2 should be closer to the population it serves.
3

4 91. 1000 Friends (represented by Caroline MacClaren): Interpretation of 215.283(1)(L) is
5 incorrect. NWN macro analysis is incorrect. ORS 215 must be read in context of state
6 policy to preserve maximum amount of farmland. Proposed corridor is flawed because it
7 was based on studies that included non-215.275 factors. Reasonable alternatives cannot
8 be rejected based on macro considerations. Previous LUBA decisions require that NWN
9 do a property-by-property analysis. NWN did not really consider reasonable alternatives,
10 because the alternatives they described were set up to automatically fail. NWN cannot
11 use safety as reason for avoiding urban zone when existing pipelines in urban zones are
12 considered safe. NWN has not given a consistent rationale for deciding when the RROW
13 is safe and when it isn't. Adverse impacts of farming are permanent. Agricultural
14 Mitigation Plan should provide recourse to farmers.
15

16 92. Frederick: NWN used cost as the major consideration in choosing route. NWN did not
17 consider available RROW. New RROW for Roy Rogers Road was a better alternative
18 but was not considered. OOE should have been aware of new Roy Rogers Road
19 development.
20

21 93. Taylor: NWN should use RROW. Rural roads have few competing utilities.
22

23 94. Rienhart-Muller: pipeline too close to residences. Fault through Parrett Mountain. NWN
24 should use existing BPA right of way. Compensation offered by NWN does not consider
25 emotional factor.
26

27 95. Moore: general safety, property value, only NWN benefits.
28

29 96. Kimlinger: prefers use of property lines in Zimmerman-Heinz area rather than route adjacent
30 to road.
31

32 97. McCarthy: five feet not an acceptable depth. Pipeline should be under paved surface. NWN
33 corridor through farmland is based solely on cost. Eighty-foot construction easement is
34 too wide. EFSC should not allow 200-foot corridor, and NWN should specify exact
35 pipeline location.
36

37 98. Dobbins, Ron: NWN should use Burkhalter Road. Adverse farm impacts (tile, compaction,
38 continuing disruption by maintenance activities). Even a ten percent drop in production
39 renders farming unviable economically. Previous utilities' efforts at mitigation failed,
40 even when the utility had good intentions and made conscientious effort, and even when
41 he was involved in the mitigation. Even if project managers are conscientious about
42 mitigation, the construction crews will not be. Rocks cannot be removed from trench
43 spoils successfully. AIMP doesn't account for loss of biological activity in soil.
44 Compensation does not cover farmers' lost time.
45

46 100. Dobbins, Vince: NWN should use Burkhalter Road. Wetlands along Burkhalter Road
47 are not protected because they are ODFW habitat categories 4 and 6. NWN's other stated
48 reasons for avoiding Burkhalter Road are not valid. NWN does not need more than 50-
49 foot construction ROW. Cemetery on north side of Burkhalter Road is not adequate

1 reason for avoiding the Burkhalter RROW. Peach trees on south side are not an obstacle
2 to Burkhalter RROW, because they are small. Burkhalter has few competing utilities.
3 Adequate room exists between RROW and fruit trees by the side of Burkhalter Road.
4 NWN could use 4488-foot HDD bore under Burkhalter properties. Adverse farm impact
5 (soil compaction and interference with farm equipment).
6

- 7 101. Evans: Adverse impacts on farm (restrictions). Earthquake potential in the region,
8 generally. Earthquake could raise level of pipeline and expose it to danger from farming
9 or subsoiling. Suggests alternate route using 332nd (similar route proposed by McNeil).
10
11 102. Lapp: Use of property would force significant change in practice and increase in cost of
12 farming. Pipeline would preclude practice of burning prunings and system for pest
13 control. Permanent loss of mature orchard stock that would not recover. NWN could
14 avoid impacts by continuing already existing HDD bore, or by using RROW.
15
16 103. Citizens for Protection of Dairy Creek Valley (Susan Anthony): NWN failed to consider
17 Green Mountain Route suggested earlier. (This route is different from the Green
18 Mountain segment described and rejected in the ASC). NWN also did not consider
19 Pumpkin Ridge RROW. Corridor should not add ten feet to existing 16-inch pipeline
20 easement in Dairy Creek Valley. Prefers Gordon Road alternative to Milne Road.
21
22 104. Washington County Commission: NWN should use RROW. Deviations from RROW
23 should be based on a unique identified safety hazard. NWN should avoid EFU land
24 altogether if its use would preclude existing farm use. Bond should be required to ensure
25 mitigation. Some conditions suggested in the county's November 2001 letter and not
26 included in DPO-
27 (j) construction hours for the project are 7:00 AM until 7:00 PM daily, except for
28 Sundays. If work is proposed after these hours or on Sunday, a variance to the
29 noise standards must be pursued in advance.
30 (k) contact James Renner of Oregon Heritage Tree program during planning and
31 construction to protect the tree resource located on highway 219 south of
32 Hillsboro.
33 (L) NWN shall acquire a bond or other security from its contractors to ensure
34 restoration of agricultural land to its former condition when disturbed during
35 siting, maintenance, repair or reconstruction of the facility, which may require a
36 baseline assessment of conditions prior to construction
37 (m) NWN should be responsible for future impacts to agricultural operations caused
38 by pipeline construction for a specified period of time.
39

40 *Note:* conditions (j) and (k) were omitted only by oversight, and OOE recommends they
41 be included. Conditions (L) and (m) are part of the larger question of adequacy of the
42 Agricultural Mitigation Plan, and OOE recommends that the overall issues surrounding
43 that plan need to be settled before adopting these individual conditions.
44

- 45 105 Oregon Public Utility Commission (Jack Dent, Chief, Pipeline Safety): 720 psig is
46 maximum, not nominal pressure. Corrects DPO discussion of requirement to call for
47 locates before excavating, and states that the requirement to call for locates should not be
48 considered a significant change in farming practice. Suggests change in condition on
49 continuing investigation of internal inspection devices. Suggests adding a sentence to

1 safety condition, stating that 49 CFR 192 regulations shall prevail in event of any
2 conflict. Stated that use of private easement in EFU zone provides greater safety than
3 RROW, primarily because of third party damage concern. *Note:* We agree with the
4 language Mr. Dent suggested regarding the maximum operating pressure, the appropriate
5 wording of the condition on internal inspection devices, and the statement that 49 CFR
6 requirements prevail in any conflict. However, the suggestion that the requirement to call
7 for locates does not force a significant change to farming practice is contrary to testimony
8 from others and should be resolved with more evidence in the contested case.
9

- 10 106. Oregon Public Utility Commission (Reed Harris): Arguments about validity of OPUC's
11 review of Integrated Resource Plan (IRP) are moot because there was opportunity for
12 public participation in the IRP review, including opportunity to appeal the Commission's
13 order. There was no appeal.
14
- 15 107. NWN (represented by Margaret Kirkpatrick of Stoel Rives): Many conditions in the
16 DPO are unnecessary. NWN proposed corridor following property lines parallel to Heinz
17 and Zimmerman Roads is better justified than the corridor using RROW. NWN wants
18 certain conditions relaxed, including conditions regarding Agricultural Mitigation Plan,
19 40-foot limit on private easements, and conditions prescribing habitat mitigation. NWN
20 states that the ASC provides enough information to find compliance with preferred
21 corridor based on ORS 215.275 rather than 283(1)(L). Objects to OOE's "split zone"
22 condition, and condition requiring bore pad 1300 feet from Willamette River. Corrects
23 several minor errors in DPO. *Note:* The conditions on land use, agricultural mitigation
24 and habitat mitigation are highly controversial. OOE recommends leaving them as is in
25 the Proposed Order until the contested case produces more evidence. Regarding NWN's
26 comments on other standards and conditions, staff has agreed with some and disagreed
27 with others. These comments are addressed in the discussion of the applicable
28 conditions.
29
- 30 108. Mardock: Favors route along property lines in Heinz-Zimmerman area. A corridor in
31 this area adjacent to RROW would affect wells, irrigation and drainage.
32
- 33 109. Tolls: Adverse farm impact (soil impact). NWN should use RROW.
34
- 35 110. Livermore: Adverse farm impact (loss of orchard stock). NWN should be more specific
36 about exact pipeline location.
37
- 38 111. Wilmes: Pipeline would preclude future development of property as aggregate resource
39 site.
40
- 41 112. Hewitt: Removal of mature trees on property.
42
- 43 113. Wanner: Prefers corridor along property lines in Heinz road area to corridor along Heinz
44 RROW. General safety.
45
- 46 113. Cooper: Potential for archaeological objects. NWN chose corridor based solely on cost.
47 NWN should use RROW.
48

- 1 114. Temkin: Prefers corridor along property lines in Heinz Road area to corridor along Heinz
2 RROW. Home has short setback from road. Farm impacts greater along RROW. Crops
3 close to road.
4
- 5 115. Doxtader: Prefers corridor along property lines in Heinz Road area to corridor along
6 Heinz RROW. Corridor adjacent to Heinz RROW has greater effect on drainage.
7 Corridor adjacent to RROW is less safe than corridor along property lines.
8
- 9 116. Payzant: NWN did poor job of mitigation on earlier pipeline. EFSC should require a
10 performance bond for agricultural mitigation.
11
- 12 117. Marion County Farm Burea (Larry Wells): General farm impacts. NWN should be more
13 specific about exact pipeline location.
14
- 15 118. Ward, Lowell: NWN should be required to enhance F&W habitat.
16
- 17 119. Schulmerich, Al: Corridor passes 343 feet from school. NWN should use Burkhalter
18 Road.
19
- 20 120. Scoggins: NWN should use RROW. Chemical contamination near Columbia Helicopter
21 is not adequate reason to avoid RROW because the plume is deep, contamination is much
22 reduced, and chemical is volatile and would disperse. Pipeline on airport property would
23 limit future uses of airport property. Airport is not a safe place for pipeline because of
24 planes landing. Aurora airport could be site of future major passenger airport.
25
- 26 121. Markley: NWN should use RROW.
27
- 28 122. Schulmerich, Janet: NWN should use RROW. Public utility use of private farmland not
29 fair.
30
- 31 123. Coussens: NWN has inconsistent standards for when they stay on RROW and when they
32 don't.
33
- 34 124. Hess: Proposed corridor west of Pudding River is much wider than 200 feet. Bore site
35 has great impact on farmland. Bore spoils could contaminate soil. Site of Williams
36 interstate pipeline shows lost productivity. Airport is not a safe place for pipeline.
37
- 38 125. Stark (State Senator): general safety concerns, fair compensation. Expects Council to
39 give due regard to citizen input.
40
- 41 126. Leighton: Parents' health poor, asked if pipeline would affect ability to receive hardship
42 permit to build home for parents on EFU property. Asked if pipeline would affect ability
43 to drill additional well.
44
- 45 127. Taylor, Vickie: General safety concern. On property, one pipeline would cross another.
46
- 47 128. Gholston: potential effect of pipeline on residential wells. General safety concerns.
48
- 49 129. Mauro: Thought pipeline depth would be 40 or 50 feet rather than 5 feet. General safety.

1
2 130. Peters (Washington Co. Farm Bureau): EFSC should consider possible future crops that
3 may be planted. Pipeline is urban use and should be in the urban zone. Placement under
4 paved surface is safer than farmland because third party damage less likely.
5

6 E. Issues Raised in Comments

7

8 Although OOE received over 65 comment letters about the ASC and 130 comments during the
9 public hearings held August 6 and 12, 2002, most comments raised similar issues. Many
10 substantive issues appeared in one or more comments, with variations in wording. All comments
11 were provided to the Council in their entirety. However, the major issues raised during both
12 phases are summarized below.
13

14 1. Comments dealing with placement in public ROW

15 Most people stated that the pipeline should be placed in public ROW. This comment appeared
16 more times than all others.
17

- 18 a) Safety is not a valid reason for avoiding roads and urban areas because there are currently
19 many miles of pipeline in roads and urban areas that are considered safe.
- 20 b) NWN wants to use farmland because it is cheaper.
- 21 c) Only ten of the 62 miles will be in public ROW.
- 22 d) NWN should use Dairy Creek Road rather than following the existing SMF corridor.
- 23 e) NWN's reasons for avoiding Burkhalter Road are not valid
- 24 f) NWN has not shown that there is no room in public ROW
- 25 g) The pipeline is safe under the road because other utilities generally use the side of the road.
- 26 h) Use of Highway 26 would be allowed by ODOT as far as Cornelius Pass
- 27 i) The 72-inch water along Highway 8 shows that pipeline can be placed in road.
- 28 j) Third party damage is not a valid reason to use EFU land because farmers frequently dig
29 deeper than 5 feet.
- 30 k) The pipeline should be placed in "existing utility corridor".
- 31 l) NWN and OOE should have coordinated with the counties to put the pipeline where roads
32 are already being expanded.
- 33 m) The detour around Burkhalter road could be avoided by an HDD bore.
- 34 n) Wetlands wet of Burkhalter Rd could be crossed because they are low ODFW category.
35

36 This Proposed Order addresses these comments in its proposed findings and conditions.
37 Regarding safety and third party damage within public ROW, we agree that NWN operates
38 pipelines within public ROW and considers them safe. We note that safety is relative, not
39 absolute. The pipeline may be acceptably safe within public ROW, but the federal OPS and the
40 Oregon PUC both have stated that third party damage is the leading accident cause, and this risk
41 is lower outside the ROW. However, for segments of the proposed corridor that include public
42 roads, OOE has recommended that the pipeline be considered a permitted use under ORS
43 215.283(1)(L), with the condition that the permanent easement either be within public right of
44 way or adjacent to it.
45

46 OOE does not agree that NWN relied solely on cost in selecting EFU land. In the ASC, NWN
47 has presented arguments based on safety and engineering factors. In Attachment B to this order,
48 OOE recognizes that it might be possible to overcome some engineering challenges with

1 unlimited funds, but we do not believe the statute requires the applicant to take engineering steps
2 that are unreasonably costly, to the point where the project could no longer meet its purpose.
3

4 Regarding the use of the 1989 SMF corridor, NWN takes the position that use of the 1989 SMF
5 corridor is allowed under ORS 215.275(2)(c), “availability of existing ROW”. Moreover, in
6 supplemental information provided on May 31, 2002, NWN provided additional reasons for not
7 following Dairy Creek Road. Although some of those reasons were outside the six factors in
8 ORS 215.275(2), NWN included reasons based on other requirements of state or federal agencies
9 (relating to habitat) and engineering considerations.

10
11 Regarding a corridor along Highway 26 and Cornelius Pass, NWN submitted evidence that
12 ODOT would not allow placement of the proposed facility along Highway 26. At this point in
13 time, there is substantial evidence in the record to support a finding that a Highway 26 route is
14 not feasible due to other requirements of state or federal law. In addition, the statutes do not
15 require consideration of “all” alternatives, because that would create the very “N+1” issue that
16 the statute was deliberately designed to avoid. OOE described reasonable alternatives that the
17 public suggested in good faith during the NOI phase and required NWN to consider them. This
18 satisfies the statutory requirement to consider “reasonable alternatives.”
19

20 Regarding the 72-inch water pipe, OOE notes that third party damage to a water line would be
21 less likely to result in adverse effects to human safety. OOE therefore does not believe the two
22 are equivalent.
23

24 Regarding third party damage by farmers, OOE notes that NWN consulted with agricultural
25 specialists who advised them that 5 feet is an appropriate depth, and that farmers who plan to
26 excavate to more than 5 feet are required to contact the utility and obtain a “locate”. However,
27 OOE recognizes that the requirement to “locate” could be a considered forcing a “significant
28 change in farming practice”. Therefore, ORS 215.275 requires the Council to adopt conditions
29 requiring NWN to locate the pipeline deep enough so that OPUC would not require a “locate”
30 for each occurrence of normal farming practice. Also, OOE has consulted with Jack Dent, Chief,
31 Pipeline Safety for OPUC, and has reviewed the OPUC regulations regarding the requirement to
32 call before digging. The OPUC regulation does require a call to the utility notification center
33 prior to digging in a known easement.
34

35 Regarding the use of “existing utility corridors”, there is no evidence of such corridors except
36 where public utilities are in the road ROW, and the BPA transmission line right-of-way. We
37 agree that NWN should locate the pipeline in or along road ROW or provide justification for not
38 using road segments where they provide a reasonably direct route. The ASC shows that NWN
39 tried to use BPA corridors but was refused permission.
40

41 2. Comments regarding impacts on farms and other resources

- 42
43 a) Avoidance is the only acceptable mitigation for farm impacts.
44 b) Crop restrictions are unacceptable.
45 c) NWN must assume highest value for lost crops and pay triple damages.
46 d) Mitigation of farm impacts will not be effective, as shown by previous experience.
47 e) Many other adverse farm and soil impacts.
48 f) Section (5) of ORS 215.275 is a siting criterion.

- 1 g) HDD boring involving the use of bentonite in residential areas could affect wells and water
- 2 supply.
- 3 h) Cultural artifacts may exist within the corridor.
- 4 i) The pipeline will affect wildlife habitat.
- 5 j) Proposed segment along Dairy Creek will erode steambank and force removal of trees that
- 6 are important for habitat and bank stability
- 7 k) Above ground facilities violate scenic and aesthetic values

8
9 In addition, numerous property owners in the Heinz and Zimmerman Road area commented that
10 the NWN “Preferred” option along property lines would actually have less adverse impact on
11 farm property in that area than the “Alternate” option along the road right of way in that area.

12
13 Regarding crop restrictions, OOE notes that NWN has attempted to locate the proposed facility
14 where it will not conflict with accepted farm practices. We agree that some parts of the
15 requested location of the proposed facility are currently planted in Christmas trees and orchards,
16 but, in general, NWN has made an effort to locate in areas currently planted in short, shallow
17 root crops that would not be restricted.

18
19 Regarding impacts on farming and soil, NWN has proposed detailed mitigation steps in its
20 “Agricultural Mitigation Plan” and in Exhibit I of the Application. These plans appear quite
21 detailed and explicit, and OOE recommends in Section IV that those plans be adopted as
22 conditions. OOE does not agree that poor mitigation of past projects necessarily means poor
23 mitigation during this one. Rather OOE believes that both EFSC and NWN have the opportunity
24 to learn from past experience and improve construction and mitigation practices based on that
25 experience. Moreover, we have no evidence that past projects that resulted in crop and soil
26 damage were under the jurisdiction of a regulatory agency such as EFSC, with the authority and
27 ability to impose mitigation conditions. Therefore, it is reasonable to expect that the mitigation
28 plans offered by the applicant and required by EFSC will result in mitigation that meets
29 applicable requirements. However, comments on the Draft Proposed Order included the
30 following criticisms of the AIMP:

- 31
- 32 a) Does not address soil biology
- 33 b) Previous utilities promised mitigation and did not follow through
- 34 c) Even previous developers with good intentions did not mitigate successfully (even in cases
- 35 where the farmer was hired to perform some of the mitigation)
- 36 d) The SMF built in 1989 caused loss of productivity that has still not recovered
- 37 e) AIMP may look good on paper but construction crews will not follow it carefully
- 38 f) Imported soil is not an acceptable replacement for native soil
- 39 g) Does not set objectively verifiable obligations on NWN’s part.
- 40 h) Leaves farmer with no recourse
- 41 i) Needs to account for impacts that may not be evident until the future.
- 42 j) EFSC should require a performance bond for agricultural mitigation.

43
44 Regarding the question of avoidance versus mitigation, OOE agrees that ORS 215.275 clearly
45 requires NWN to show that the pipeline “must” be located in EFU zone before siting there.
46 However, once that requirement has been satisfied, then sections (4) and (5) clearly anticipate
47 cases where avoidance is not reasonable or is impractical for one of the reasons in section (2). In
48 those cases, EFSC has the authority and responsibility to require mitigation in the form of
49 construction techniques, site and soil restoration, and post-installation monitoring.

1
2 Issues (f) through (j) concern matters other than farming. By letter dated March 4, 2002, NWN
3 responded to the question about bentonite and its potential affect on local wells. They stated that
4 the likelihood of bentonite reaching the residential water supply is extremely low, based on
5 substantial past experience. In the unlikely event that bentonite did reach the local water supply,
6 the effect would be temporary and would stop when HDD drilling was over. NWN would flush
7 the water supply system until it was clean. NWN also committed to supplying water by tank, if
8 necessary. This explanation is consistent with what OOE observed when bentonite was used to
9 drill under high value habitat streams during the 1999 South Mist Feeder Phase 3 Project.

10
11 Regarding the possibility of cultural artifacts, OOE has reviewed NWN's information in support
12 of compliance with the EFSC Historic and Cultural standard and recommends a finding of
13 compliance, with conditions. These findings, located at section IV.B of this Order, address the
14 possibility that previously unknown archaeological resources may be encountered, and require
15 the presence of a qualified archaeologist in areas where artifacts are likely to exist.

16
17 Regarding impact on habitat and streambank stability, this order addresses those impacts in our
18 findings regarding the Council's Fish and Wildlife Habitat standard and DSL's removal/fill
19 permit requirements. Moreover, Washington County has reviewed Exhibit K of the ASC for
20 compliance with its resource protection requirements at WCC § 422, floodplain requirements at
21 WCC § 421, and erosion control requirements at WCC § 410. The County has reservations
22 about farmland impacts, but it commented that the application generally meets the requirements
23 of the above ordinances. Consistent with NWN's commitment, OOE recommends conditions
24 requiring NWN to avoid, if possible, removing trees in forested wetlands or in areas where trees
25 are important for stream shade or stream bank protection. NWN has also committed to extensive
26 use of HDD boring in order to avoid stream impacts.

27
28 Finally, regarding scenic and recreational impacts, OOE has reviewed the application for
29 compliance with the Council's Scenic & Aesthetic and Recreational standards and has
30 recommended that the Council find that NWN correctly identified the important scenic and
31 recreational resources as those terms are defined at OAR 345-022-0080 and 0100. The pipeline
32 will be underground, and the relatively small number of above-ground valves and other
33 components will not significantly affect those resources.

34 3. Comments regarding safety

- 35
36
37 a) NWN lacks resources to properly manage the project because of the merger with PGE.
38 b) The Sherman Mill slide area is a particular landslide hazard.
39 c) Compliance with federal regulations is not adequate to ensure safety.
40 d) The pipeline should not be placed in rapidly growing areas like Sherwood.
41 e) Flooding is a hazard, as shown by 1994 event in Texas.
42 f) Terrorists pose a threat to pipelines.

43
44 This order addresses safety generally, in section IV.C. Regarding reliance on federal regulations
45 alone, this order identifies areas where the federal government has taken action as a result of
46 recent explosions such as Bellingham. In the Project Order and May 2001 RAI, OOE suggested
47 ways that NWN might exceed federal requirements, and NWN has committed to many of them.
48 Regarding the Sherman Mill area, the Oregon Department of Geology and Mineral Industries
49 (DOGAMI) reviewed Exhibit H of the ASC and considered the geotechnical investigation to be

1 thorough. Regarding the pipeline location near growing suburbs, ORS 215.275 actually directs
2 NWN to seek a reasonably direct route that utilizes non-EFU land unless there are specific
3 reasons why the pipeline “must” be on farmland. Although a pipeline located away from
4 residential zones is arguably lower in risk, the Farm Bureau and others have correctly
5 commented that NWN currently operates pipelines in other populated areas and they are
6 considered acceptably low in risk. Regarding the flooding hazard, OOE’s recommended
7 findings of compliance with Washington County floodplain ordinances at WCC §421 include
8 conditions requiring the use of anchors to ensure the pipeline is not stressed by floodwaters.
9 Finally, there is no evidence that the proposed pipeline is a more likely terrorist target than any
10 other facility of any kind, energy related or otherwise. The pipeline is underground its entire
11 length, it is designed to withstand the force of a seismic event, and it is located in zones of
12 relatively low population density. Finally, the allegation that NWN’s proposed purchase of PGE
13 will deplete resources and undermine safety is not backed up by facts. Both PGE and NWN
14 have stated publicly that they expect to realize synergies that will make the combined company
15 more efficient. No evidence has been offered to the contrary. Further, as of the date of this
16 order, the proposed NWN purchase of PGE is cancelled, rendering this point moot.

17
18 4. Comments on NWN’s general corridor selection approach

- 19
20 a) NWN did not seek adequate public involvement, such as CPO’s.
21 b) The “macro” approach is incorrect, and NWN should justify the corridor property-by-
22 property.
23 c) EFSC cannot determine compliance based on a 200-foot wide corridor.
24 d) Avoiding steep terrain is not a valid reason to use EFU land since the 1999 SMF expansion
25 went through terrain that was equally steep.
26 e) The Sunset highway crossing is not a valid constraint since other crossing sites are available.
27 f) The most direct route from Bacona to Molalla goes through urban zones.
28 g) NWN asserted that a route through cities is “simply unreasonable”, but provided no proof.
29 h) NWN used criteria that are not valid under ORS 215.275.
30 i) Individuals were denied due process because public notice was inadequate or not provided.
31 j) The interpretation of ORS 215.283(1)(L) in the Draft Proposed Order is incorrect.
32 k) A 200-foot wide corridor is too vague for findings of compliance with standards.

33
34 Regarding public involvement, OOE has provided opportunities for public input that far exceed
35 those required by rule or statute. We describe these opportunities in detail at section II of this
36 Order. OOE notes that the “balanced corridor” described in the NOI is significantly different
37 from the “preferred corridor” requested in the ASC. The preferred corridor is longer and
38 generally follows roads more extensively. OOE took the unusual step of inviting public
39 comment during the “completeness” phase of the review, a step that is not required by the
40 Council’s rules. In July of 2000, OOE took the unusual step of issuing written notice to all
41 affected property owners that the Project Order had been issued, and the Council invited public
42 comment on the pipeline at its July 2000 meeting. In April and May of 2000, at OOE’s
43 suggestion, the Oregon Public Utility Commission (OPUC) took the unusual step of issuing
44 notice and comment opportunity on its review of the Integrated Resource Plan to persons who
45 had commented on the NOI. This step would not normally be part of OPUC’s review. In
46 December 2001, EFSC held a special Council meeting specifically to address pipeline safety.
47 All of these steps exceed any applicable legal requirement for public input. In all, OOE received
48 over two hundred written comments during the NOI review and completeness review. In cases
49 where individuals made constructive suggestions, OOE in the Project Order directed NWN to

1 consider those suggestions. OOE also identified suggestions from the public in its completeness
2 review and, in our May 2001 RAI, directed NWN to consider those suggestions as well. The
3 most prevalent public comments have concerned impact on farming and farm practices, and
4 OOE has considered that impact very seriously in this Proposed Order. In short, the procedural
5 history for this project shows that EFSC and NWN have actively sought public input, going well
6 beyond legal requirements.

7
8 Regarding the validity of the “macro” approach, OOE believes that Attachment B of this order
9 addresses the comments by the Farm Bureaus, 1000 Friends of Oregon, and Washington County
10 by examining the location of the proposed facility at a more local level. In the Project Order,
11 OOE directed NWN to justify generally the decision to limit their corridor selection area to the
12 region east of the Coast Range and west of the cities of Hillsboro, Sherwood and Wilsonville.
13 We then directed NWN to identify constraint points within that area and to divide the 62-mile
14 corridor into logical “segments” that are defined by those constraint points. Finally, we directed
15 NWN to analyze those segments according to the six ORS 215.275 (2) factors. The ORS
16 215.275 analysis in Attachment B of this order is structured in this way, so that the analysis of
17 compliance with ORS 215.275 is less “macro” and more local in its approach. Moreover, this
18 order recommends findings that NWN must locate the pipeline in or along public right-of-way,
19 with conditions that the permitted corridor be narrowed along public right-of-way so that the
20 extent to which pipeline easement is located on farmland outside of right-of-way is minimized.
21 Regarding segments of the corridor where no public right-of-way is used, Attachment B to this
22 order includes a detailed review of each segment, in order to determine if NWN considered
23 reasonable alternatives to that segment and justified the need to use EFU-zoned land outside of
24 road rights-of-way for one or more of the six reasons listed in ORS 215.275(2). Therefore, OOE
25 believes that this Proposed Order substantially addresses the comments regarding the “macro”
26 approach. OOE also believes this “segment” approach is consistent with *Albany vs. Linn*
27 *County*.

28
29 The conditions regarding the use of road ROW also address the concern over the 200-foot wide
30 corridor. We have agreed that in order to approve a 200-foot corridor, it would be necessary to
31 show that the entire corridor meets or can meet applicable standards. Where such a finding is not
32 possible, we have recommended conditions narrowing the site. This includes locations along
33 public rights-of-way or adjacent to fish and wildlife habitat category 1 or 2 (as those habitat
34 categories are defined in OAR 345-022-0060). For example, in segments that contain wetlands,
35 OOE has recommended conditions to narrow the corridor to avoid wetlands unless their use is
36 compelled by another requirement (such as farm land avoidance).

37
38 NWN is technically able to cross terrain that is quite steep, as it demonstrated in 1999 with the
39 SMF Phase 3 expansion. However, that section of the pipeline had to cross steep terrain because
40 there was simply no other way to cross the Coast Range, where the Mist storage field is located.
41 A route across steep terrain was not desirable, but it was the only choice. For the SMPE project,
42 NWN’s “preferred corridor” is flatter than the alternatives. It utilizes existing ROW, better
43 complies with the EFSC Fish and Wildlife Habitat standard, and is a more reasonably direct
44 route. NWN geology consultants stated in Exhibit H that even with considerable engineering, a
45 route through the Green Mountain area would still be slide-prone. The Green Mountain route
46 would place the pipeline further west, and NWN would still have to get through the EFU zone in
47 order to generally reach a destination to the east. In short, four of six ORS 215.275(2) factors
48 favor the preferred corridor when compared with one through the Green Mountain area.

1 In the May 2001 RAI, OOE asked about the constraint point at the Sunset Highway crossing.
2 NWN stated in its July response that alternate crossings were available but they would not
3 significantly reduce EFU impact. OOE believes this response addresses the comment.
4

5 OOE agrees that a direct line from Bacona to Molalla would go through urban land in Hillsboro,
6 Sherwood and Wilsonville and would be shorter than the NWN proposed corridor. But we
7 believe that to force the pipeline along that route is unreasonable for two reasons. First, a route
8 through those cities would defeat the project purpose, which OOE required NWN to describe in
9 the Project Order. The ASC explains that the SMPE has a dual purpose. One is to insulate
10 ratepayers against spot market volatility by facilitating the storage of gas during low-demand
11 periods so it is available during peak periods. The second purpose is to provide an efficient
12 distribution backbone for the feeders that serve the expanding suburbs in the West. In short,
13 NWN is proposing a pipeline in the West because that is where the demand is growing. A route
14 to the east would be consistent with the first purpose but not the second.
15

16 OOE also strongly believes that the Council's responsibility to consider public safety makes it
17 unreasonable to "force" a pipeline location through these cities. We acknowledge that large
18 pipelines in East Multnomah County were located in areas that were rural at the time and have
19 since become urban, and those pipelines are considered safe. We also recognize that NWN
20 operates feeder lines and laterals that must enter the urban zone to provide service. But given a
21 choice, no safety-minded engineer would deliberately place a major gas transmission line
22 through the center of large cities because it increases both the likelihood and consequences of an
23 accident significantly. We believe the statutory provision to consider public safety in ORS
24 215.275(2) allows the Council to consider these factors.
25

26 OOE agrees that the corridor studies in the NOI used criteria that are not among the ORS
27 215.275(2) factors. Much of the work in that study was actually done before the statute was
28 written. We addressed this concern in three ways. First, in the Project Order we directed NWN
29 to reevaluate certain alternative corridors using only ORS 215.275(2) factors. In fact, NWN's
30 application includes a corridor called the "HB2865 factors only" corridor. Second, in our May
31 2001 RAI, we identified arguments in the ASC that appeared to use factors that are not included
32 in the statute, and we directed NWN to reconsider those corridor segments. Finally, in our
33 detailed examination of the proposed corridor in Attachment B of this order, we did not rely on
34 consideration of any factors that were not included in the statute, even when such factors were
35 described in the ASC. For example, there are places in the ASC where NWN expressed a desire
36 to meet landowner preferences. But in this order we were not able to rely on such information as
37 a basis for finding that the facility must be located on EFU lands outside of rights-of-way. In
38 short, this order does not include consideration of non-HB 2865 factors.
39

40 Comments about proper notice and due process are addressed at Section II of this Proposed
41 Order, and in the above response to comments about opportunities for public input. The record
42 shows that OOE published large display notices in newspapers in the affected communities and
43 sent written notice of the NOI to over 1,500 potentially affected property owners, almost 500 of
44 whom attended public meetings to comment. OOE went beyond notice requirements to identify
45 people who had recently purchased potentially affected properties while the review was ongoing.
46 At OOE's direction, NWN continuously kept track of changing property ownership so that
47 mailing lists would be updated properly. All required notices were issued, and all public
48 comment periods were longer than required. The statute clearly states that affected persons must
49 comment on the record of the hearing for this Proposed Order to preserve the right to appeal or to

1 participate in the mandatory contested case on this project. Therefore, all persons have been
2 afforded due process.

3
4 5. Comments regarding the need for the pipeline

- 5
6 a) The pipeline is not needed because homeowners can choose electricity.
7 b) The Need standard must be reconsidered because the economy is slower now.
8 c) EFSC should analyze Need under OAR 345-023-0040 rather than accepting the OPUC
9 review.
10 d) A 24-inch line is not needed and a smaller line is better.

11
12 The homeowners' choice of electricity over gas is simply not relevant to EFSC's decision
13 regarding whether to approve a site certificate for the proposed facility. Under Oregon law,
14 public utilities must project the expected demand under a reasonable set of assumptions, and take
15 prudent steps to meet the demand. No statute gives EFSC or OPUC the authority to dictate the
16 customers' choices.

17
18 The comment that NWN should build a smaller line is also outside EFSC scope. EFSC must
19 apply its standards to the proposed facility, and cannot reject the project simply because some
20 other size might be preferable. EFSC rules make the OPUC acknowledged IRP the chief
21 document regarding the need for the facility. OOE has the opportunity to comment in the OPUC
22 review process, and did so. In fact, in written comments to OPUC dated July 2001, OOE asked
23 if NWN should propose an even larger pipeline. Our concern was that if demand is higher than
24 forecast, NWN could outgrow a 24-inch line and would need yet another line, with all its
25 attendant construction impacts. NWN responded, and OPUC concurred, that a smaller line
26 might be inadequate but a 24-inch line should be enough for a 30-year planning horizon.

27
28 The comment about the slowing economy is also addressed in the OPUC review. The IRP is
29 based on a range of forecasts over a long term. As OPUC states in its order, any forecast is an
30 estimate, but short-term economic fluctuations, such as the recent slowdown, are expected within
31 a 30-year planning horizon and do not change the long range forecast. A medium-high forecast
32 is a prudent ratemaking basis because the consequences of under-predicting demand are worse
33 than the consequence of over-predicting demand. Again, in its July 2001 comments, OOE asked
34 if pipeline's economic benefit is overstated by using the 30-year peak year as a "design basis"
35 year, and if an IRP based on average rather than peak demand would produce a different result.
36 NWN replied, and OPUC concurred, that the IRP result might change in magnitude (the dollar
37 benefit from the pipeline might be smaller when compared with other alternatives) but the
38 overall result would be the same.

39
40 Council rules clearly state that an OPUC-acknowledged IRP is sufficient to prove Need when the
41 applicant is a regulated utility. The EFSC analysis described in OAR 345-023-0040 would apply
42 to applicants other than regulated utilities. OOE was an active participant in the OPUC review,
43 and has recommended that the Council find that the pipeline meets its Need standard in section
44 IV.C of this order.

45
46 6. Procedural issues

1 a) Denial Of Due Process Because Of Lack Of Notice Of NOI

2 The Carsons raised several issues, including the claim that OOE had failed to give them notice of
3 NWN’s Notice of Intent for the pipeline until after the Project Order was issued and that OOE’s
4 failure denied them due process.¹⁹ The Carsons argued that the process should be returned to the
5 NOI stage and delayed for 9 months to allow them the opportunity to respond to NWN’s Notice
6 of Intent.

7
8 To prevail on a due process²⁰ claim, a person must show a private liberty or property interest that
9 will be affected by the official action. *Tupper v. Fairview*, 276 Or. 657, 556 P.2d 1340 (1976).
10 The fundamental principles of due process analysis are discussed in *Koskela v. Willamette*
11 *Industries, Inc.*, (Koskela)²¹

12
13 The question of what process constitutionally is due involves three inquiries: (1) whether
14 the person invoking the due process claim has a constitutionally protected interest in the
15 particular benefit at stake; (2) whether deprivation of that interest involves government
16 action; and (3) whether the procedures used or available are constitutionally adequate.
17 *See generally Carr v. SAIF*, 65 Or. App. 110, 117-18, 670 P.2d 1037 (1983) *rev.*
18 *dismissed* 297 Or 83, 679 P.2d 1368 (1984).

19 159 Or. App. 229, 234, 978 P. 2d 1018 (1999). And

20
21 Fundamentally, the question posed by a procedural due process challenge is whether,
22 given what is at stake, the procedures used to reach that decision provide sufficient
23 confidence in the decision made. *Mathews v. Eldridge*, 424 U. S. 319, 335, 96 S. Ct. 893,
24 47 L. Ed. 2d 18 (1976), frames the analysis as a three-part balancing test:

25
26 “[F]irst the private interest that will be affected by the official action; second, the
27 risk of an erroneous deprivation of such interest through the procedures used, and
28 the probable value, if any of additional or substitute procedural safeguards; and
29 finally, the Government’s interest, including the function involved and the fiscal
30 and administrative burdens that the additional or substitute procedural
31 requirements would entail.”

32 *Koskela*, 159 Or App 234-35.

33
34 The Carsons do not specifically address the nature of the property interest at risk in the Council’s
35 NOI process. Assuming it is a right related to their ownership of real property in the vicinity of
36 the proposed pipeline, they have not shown that the process provided was inadequate.

37
38 A review of the Oregon energy siting statutes reveals that no due process claim can arise from
39 the NOI portion of Oregon’s siting procedures. The requirement to file a notice of intent to file
40 an application for a site certificate is found in ORS 469.330. The purpose of the NOI process is
41 to prepare a project order. ORS 469.330(2). ORS 469.330(2) requires OOE to give *public*
42 *notice* of receipt of a notice of intent. After review of the notice of intent and “any public
43 comments received in response to the notice of intent,” and after consultation with state agencies,
44 OOE issues a “project order establishing the statutes, administrative rules, council standards,

¹⁹ OOE does not concede that the Carsons did not receive the public notice of the NOI.

²⁰ The Fourteenth Amendment provides, in part, that no state shall “deprive any person of * * * property without due process of law[.]”

²¹ 159 Or. App. 229, 978 P. 2d 1018 (1999), *review allowed*, 329 Or. 318, 994 P.2d 122, *rev’d*, 331 Or. 362, 15 P.3d 548, (2000) *reconsideration denied*, 2001 Ore. Lx 22 (2001).

1 local ordinances, application requirements and study requirements for the site certificate
2 application. *A project order is not a final order.*” ORS 469.330(3)(emphasis added). Finally,
3 ORS 469.330(4) provides that the project order “may be amended at any time by either the
4 Office of Energy or the council.”²²
5

6 Thus, it is plain on the face of the statute that there is no final official action affecting anyone’s
7 property in the NOI portion of the siting process. The sole purpose of administrative action is to
8 identify applicable rules and statutes to facilitate the preparation of a complete application for a
9 site certificate. The Office recommends that the Council find that the Carsons were not denied
10 due process in the NOI portion of the Council’s review process.
11

12 b) Constitutionality of ORS 215.275

13

14 The Carsons also asserted that ORS 215.275 is invalid and unconstitutional because it violates
15 the existing statute. The comments do not identify specifically which “existing statute” is
16 violated by ORS 215.275. Any constitutional analysis of legislation begins with a presumption
17 that a statute enacted by the legislature is constitutional. *State v. Tucker*, 28 Or. App. 29, 31,
18 558 P.2d 1244 (1977). In addition, a well-known canon of construction holds that if there is a
19 means of construing a statute in a constitutional fashion, the statute shall be so construed.
20 *Roberts v. Mills*, 290 Or. 441, 447, 622 P.2d 1094 (1981). ORS 215.275 is discussed at length in
21 the larger context of Oregon’s land use laws in Attachment B of this order. OOE recommends
22 that the Council find that ORS 215.275 is not unconstitutional.
23

24 OOE recommends that the issues raised in the Public Hearing be left open for further
25 development of a factual record in the contested case.
26

27 **VI. Proposed Order and Recommended Conditions**

28

29 Based on the above findings of fact, discussions and conclusions, the Office recommends that the
30 Council approve the application for a site certificate for the Northwest Natural South Mist
31 Pipeline Extension, subject to applicable mandatory conditions at OAR Chapter 345, Division
32 27, and the standard-specific conditions listed in this section VI of this Order.
33

34 **A. Mandatory Conditions from OAR Chapter 345, Division 27**

- 35 1) NWN shall submit to the Office a legal description of the site to be appended to the Site
36 Certificate prior to construction. For the purposes of this site certificate, the term "legal
37 description" means a description of the location of the pipeline as described in the pipeline
38 construction and maintenance easements recorded by NWN, and an accurate map or set of
39 maps, and geographic information system (GIS) data that clearly and specifically identifies
40 the physical location of the pipeline and the boundaries of the construction and maintenance
41 easements. The map must be in no smaller scale than 1 inch to 500 feet. In the event of a
42 conflict between the recorded easements and the map and GIS data, the recorded easements
43 will control.
44

²² In fact, the Carson’s were repeatedly informed in the fall of 2000 that they should submit any applicable criteria that had not been included in the Project Order so that the project order could be amended to include any additional legal standards that the Carsons identified. The Carsons did not submit any new criteria to the council. From this, we can only conclude that there were no additional applicable criteria that should have been included in the Project Order.

- 1 2) The pipeline shall be designed, constructed, operated and retired substantially as described in
2 the Final Order Approving Site Certificate; in compliance with the requirements of ORS
3 Chapter 469, applicable Council rules, and applicable state and local laws, rules and
4 ordinances in effect at the time the Site Certificate is issued; and in compliance with all
5 applicable permit requirements of other state agencies.
6
- 7 3) Construction shall begin not later than the end of April 2004 and be completed not later than
8 December 31, 2006.
9
- 10 4) No construction, including clearing of a right of way, except for the initial survey, may
11 commence on any part of the facility until the certificate holder has adequate control, or has
12 the statutory authority to gain control, of the lands on which clearing or construction will
13 occur
14
- 15 5) NWN shall prevent any condition over which NWN has control from developing on the site
16 that would preclude restoration of the site to a useful condition.
17
- 18 6) NWN shall restore vegetation to the extent practicable and shall landscape portions of the
19 area disturbed by construction in a manner compatible with its surroundings and/or proposed
20 future use. Upon completion of construction, NWN shall dispose of all temporary structures
21 not required for future use and all refuse and flammable materials or combustible material
22 resulting from the clearing of land or from construction of the facility, as well as timber and
23 brush that is not used for habitat mitigation in accordance with conditions related to the
24 Council's Fish and Wildlife Habitat standard.
25
- 26 7) The construction easement shall be limited to 80 feet, except where a narrower construction
27 corridor is required by conditions related to individual Council standards.
28
- 29 8) After construction, the site, as that term is defined in ORS ORS 469.300 and OAR 345-01-
30 0010, shall be the 40 foot wide permanent easement between the Bacona Blowdown Station
31 and the Molalla Gate Station
32
- 33 9) Before any transfer of ownership of the facility or ownership of the site certificate holder,
34 NWN shall inform the Office of Energy of the proposed new owners. The requirements of
35 OAR 345-027-0100 apply to any transfer of ownership that requires a transfer of the site
36 certificate
37
- 38 10) If the Council finds that the certificate holder has permanently ceased construction or
39 operation of the facility without retiring the substantially as described in Section IV.A.6 of
40 the Order, the Council may direct the Office to prepare a proposed a final retirement plan for
41 the Council's approval. Upon the Council's approval of the final retirement plan, the Council
42 may draw on the bond or letter of credit described in section (8) to restore the site to a useful,
43 non-hazardous condition according to the final retirement plan, in addition to any penalties
44 the Council may impose under OAR Chapter 345, Division 29. If the amount of the bond or
45 letter of credit is insufficient to pay the actual cost of retirement, the certificate holder shall
46 pay any additional cost necessary to restore the site to a useful, non-hazardous condition.
47 After completion of site restoration, the Council shall issue an order to terminate the site
48 certificate if the Council finds that the facility has been retired according to the approved
49 final retirement plan

1
2 **B. Site Specific Conditions Under OAR 345-027-0023**

- 3 1) NWN shall notify OOE, the State Building Codes Division and the Department of Geology
4 and Mineral Industries promptly if site investigations or trenching reveal that subsurface
5 conditions differ significantly from those described in the Application for Site Certificate .
6 The Council may, at such time, require the certificate holder to propose additional mitigating
7 actions in consultation with the Department of Geology and Mineral Industries and the
8 Building Codes Division.
9
- 10 2) NWN shall notify OOE, the State Building Codes Division and the Department of Geology
11 and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic
12 dikes are found at or in the vicinity of the site.
13
- 14 3) NWN shall submit to OOE copies of all incident reports involving the certified pipeline
15 required under 49 CFR §192.709.
16

17 **C. Monitoring Conditions Under OAR 345-027-0028**

- 18 1) NWN shall establish, in consultation with affected state agencies and local governments,
19 monitoring programs as required by the Site Certificate for impact on resources protected by
20 the standards of OAR Chapter 345, Divisions 22 and 24 and to ensure compliance with the
21 Site Certificate. The programs shall be subject to the review and approval of the Council.
22
- 23 2) NWN shall establish monitoring programs as required by permitting agencies and local
24 governments, as required by the Site Certificate.
25
- 26 3) If NWN becomes aware of a significant environmental change or impact attributable to the
27 facility, NWN shall submit to OOE as soon as possible a written report identifying the issue
28 and assessing the impact on the facility and any affected Site Certificate conditions.
29

30 **D. Conditions related to EFSC Standards**

31 *Organizational Expertise Standard:*

- 32 1) NWN shall contractually require the EPC contractor and all independent contractors and
33 subcontractors involved in the construction and operation of the Project to comply with all
34 applicable laws and regulations and with the terms and conditions of the site certificate.
35 Such contractual provision shall not operate to relieve the certificate holder of responsibility
36 under the site certificate.
37
- 38 2) NWN shall obtain all necessary state and local permits or approvals required for the
39 construction, operation and retirement of the Project.
40

41 *Structural Standard:*

- 42 1) NWN shall assess seismically induced damage from slope movement following any
43 earthquake that generates peak ground accelerations in excess of 0.1g along the corridor.
44
- 45 2) NWN shall design and construct the pipeline substantially in accordance with the
46 recommendations of Appendix H-1 of the Application, Section 6.1: "Hazard Mitigation."
47
- 48 3) During construction of the pipeline, NWN shall provide that construction is observed by a
49 qualified geo-professional to ensure that the recommendations contained in Appendix H-1 of

1 the Application are implemented properly and that any unforeseen field conditions are
2 reported to NWN. If changes are encountered in the field, NWN shall ensure that the
3 pipeline design is modified to provide for safe installation and operation of the pipeline.
4

5 *Soil Protection Standard*

- 6 1) NWN shall use erosion prevention techniques and sediment control measures as described in
7 the Erosion Prevention and Sediment Control Manual (December 2000) jointly developed by
8 the Clean Water Agency, Washington County, Clackamas County, and the city of West Linn,
9 or its successor. Use of these measures shall not be limited to Washington County.
10
- 11 2) NWN shall implement the Agricultural Impact Mitigation Plan (October 2001) and the steps
12 contained therein.
13
- 14 3) NWN shall design and construct the pipeline substantially in accordance with the
15 representations made in Exhibit I of the Application for Site Certificate, March 2001.
16 Mitigation steps that are described in Exhibit I and are not listed in the AIMP are nonetheless
17 considered binding commitments by NWN and shall apply.
18
- 19 4) Prior to ground disturbing activity on any property in the EFU zone, NWN shall prepare for
20 that property an itemized list documenting the pre-construction inventory described at (3)(a)
21 of the AIMP, a description of soil conditions, and planned mitigation and restoration steps for
22 that property. The list shall be signed by the Agricultural Inspector appointed pursuant to the
23 AIMP, or his/her designee. Prior to the final hydrostatic test of the pipeline, the Agricultural
24 Inspector shall sign-off for each property, indicating concurrence that the mitigation steps
25 were performed satisfactorily.
26
- 27 5) Site specific mitigation measures shall be tailored to the soil type, as listed in Tables I-2, I-3
28 and I-4 of the ASC.
29
- 30 6) NWN shall characterize the pipeline right of way at regular intervals for rock size and
31 concentration prior to construction, in order to ensure that soil is returned to its pre-
32 construction condition.
33
- 34 7) NWN shall use existing public roads, farm roads or private driveways (with permission) to
35 access the construction zone right of way and then travel along the construction zone right of
36 way to access HDD bores. New access roads may not be built outside the corridor on
37 farmland.
38
- 39 8) NWN shall certify that all NWN and contract supervisory personnel with construction
40 responsibility are trained in the specific mitigation requirements described in Exhibit I, the
41 Agricultural Impact Mitigation Plan, and this Order. Plans, subject matter, and the schedule
42 for this training shall be made available to OOE and ODA prior to start of construction.
43
- 44 9) NWN shall certify in writing to OOE that the agricultural inspector described in the AIMP
45 will have “stop work” authority. If the measures to ensure that topsoil is not properly
46 segregated, stockpiled, and replaced are not being performed satisfactorily during
47 construction, the agricultural inspector shall have authority to halt construction and
48 implement corrective actions and action to prevent further noncompliance. Such actions may
49 include retraining of construction personnel.

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Land Use Standard

General Conditions Pursuant to ORS 215

- 1) Where the proposed corridor is located along existing public road or highway right-of-way (whether or not that right-of-way is improved) within the EFU district, both the construction and the maintenance/operation easements shall be located within or adjacent to the existing public road or highway right-of-way. In this condition, the term adjacent means contiguous. If the construction easement is along public right-of-way, NWN shall utilize public right-of-way for as much of the 80-foot construction corridor as practical. The construction corridor shall not utilize more than 40 feet of land in the EFU zone outside public right-of-way without express site-specific authorization from OOE. These restrictions shall not apply to the corridor along public roads outside the EFU zone.
- 2) Where the corridor includes lands on both sides of a public road, and those lands are zoned EFU only on one side of the road, NWN shall locate the facility on the side of the road that is not zoned EFU except where NWN demonstrates that it would be necessary to remove or displace a building to stay on the non-EFU side. This condition may be relaxed if using the non-EFU side would unavoidably result in the pipeline being less than 40 feet from a building used for human occupancy.
- 3) Notwithstanding the requirements of ORS 215.283(1)(L), if the construction or permanent easement in or adjacent to road right-of-way would affect Category 1 or Category 2 habitat as described in section IV.7 of this order, the construction or permanent easement may be sited on land in the EFU zone that is not adjacent to existing road right of way, but only to the extent necessary to avoid Category 1 or 2 habitat. In such cases the easement shall be located as close to the road right-of-way as possible. This permission shall not apply if the habitat will be avoided through HDD or other boring technique. EFU land that is not in or adjacent to public road right-of-way shall not be used to avoid habitat of category 3 or lower.
- 4) The permanent right of way for the pipeline shall not exceed 40 feet in width generally, or 50 feet where the proposed pipeline is parallel to the 16-inch South Mist Feeder pipeline.

NWN commitments under Wash. Co. Floodplain and Drainage Hazard Regulations (WCC § 421), Erosion Control Regulations (WCC § 426), and Grading and Drainage Regulations (WCC § 410):

- 5) NWN shall obtain from the Washington County Operations Division, and its equivalent in Clackamas and Marion counties, all required utility permits to allow construction of the pipeline within the County road right-of-way. A copy of the permit shall be submitted to the Land Use planner for that county.
- 6) NWN shall provide the Washington County Land Development Division Project Planner, and the equivalent in Clackamas and Marion counties, 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 within those counties.
- 7) Prior to construction, NWN shall provide Washington County with the detailed grading plan and obtain a grading permit from Washington County pursuant to WCC § 410.

- 1
- 2 8) NWN shall obtain equivalent utility and grading and drainage permits in Clackamas and
- 3 Marion Counties as applicable.
- 4
- 5 9) Prior to construction, NWN shall provide the Washington County Land Use Department with
- 6 the floodplain delineations meeting the requirements of WCC 421-1.2 A, B, and C.
- 7
- 8 10) Prior to construction, NWN shall submit detailed topographic information meeting the
- 9 requirements of WC 421-3, prepared by civil engineer registered in Oregon.
- 10
- 11 11) NWN shall implement the mitigation measures in the “Flood Hazard Impact Mitigation Plan”
- 12 submitted as Appendix K-10 of the ASC.
- 13
- 14 12) NWN shall provide a statement by a registered civil engineer affirming that the pipeline
- 15 confirms with the standards of WCC § 421-10.
- 16
- 17 13) NWN shall perform any maintenance on the maintenance easement outside public right of
- 18 way by means of hand implements (under WCC 421-14 lawn mowers are considered hand
- 19 implements).
- 20
- 21 14) Excess soils generated by trench excavation and backfill shall be hauled off of the pipeline
- 22 alignment and disposed of in an approved fill site area. Surface conditions shall be restored
- 23 to pre-construction slopes and grades and disturbed areas shall be revegetated.
- 24
- 25 15) If the pipeline crosses a stream or drainage hazard area, it shall be installed six feet below the
- 26 bottom of the natural channel. The channel shall be restored to its original conditions.
- 27
- 28 16) NWN shall allow no above ground structures that will catch debris or impede floodwater
- 29 flow. Protective fencing required around above ground facilities shall be designed not to
- 30 impeded floodwater flow.
- 31
- 32 17) The existing grades and dimensions of the floodway shall not be changed. Trench
- 33 excavations that have disturbed vegetation shall be revegetated.
- 34
- 35 18) NWN shall not dump fill material in a flood area without a permit from Washington County.
- 36
- 37 19) NWN shall equalize cut and fill and shall certify at the completion of construction of the
- 38 pipeline that no net fill has occurred in flood hazard areas, except for post-construction
- 39 “crowning” to allow for soil settlement.
- 40
- 41 20) NWN shall observe Washington County’s preference for enhancement of riparian habitats
- 42 through planting or other such improvements. WCC Section 421-4.6B recommends the
- 43 planting of “at least 5 plants per 100 feet of bank area.”
- 44
- 45 21) NWN shall implement the Erosion and Sediment Control Plan submitted as ASC Exhibit K-
- 46 11. Note – the Washington County 1991 Manual is replaced by the CWA Erosion
- 47 Prevention and Sediment Control Manual dated 12/2000
- 48

1 22) Prior to construction, NWN shall provide OOE with documentation of Washington County
2 review of the final Erosion Control Plan.

3
4 Other conditions requested by affected local governments:

5
6 23) For any section of the pipe placed under the road, NWN shall restore the road to pre-
7 construction condition or better, and to a standard designed for normal traffic loading for a 20
8 year life.

9
10 24) NWN shall consult with the appropriate County's operations department regarding load
11 capacity for any bridges utilized during construction.

12
13 25) NWN shall coordinate any road closures through the affected County.

14
15 26) NWN shall not deposit spoils from the Tualatin Valley highway bore within the M-2 district
16 in Hillsboro.

17
18 27) Construction hours for the project are 7:00 AM until 7:00 PM daily except for Sundays. If
19 work is proposed after these hours or on Sunday, NWN must obtain a variance from
20 Washington County noise standards.

21
22 28) NWN shall contact the Oregon Heritage Tree program during planning and construction to
23 protect the tree resource located on highway 219 south of Hillsboro.

24
25 *Special Conditions for Temporary Laydown Area*

26 1) Prior to the temporary, construction-related use of any laydown area shown on Appendix K-2
27 of the ASC, as supplemented in July 2001, that is outside the 200-foot pipeline corridor (the
28 temporary laydown areas), NWN shall provide the Office of Energy with a map, aerial
29 photograph or other depiction of the proposed temporary laydown area, together with a
30 description of the temporary laydown area, including the zoning, physical conditions,
31 existing uses, and any fieldwork studies performed at the temporary laydown area.

32
33 2) Use of the temporary laydown areas shall conclude within one month of the date construction
34 is complete. Mitigation for impacts to habitat and farm land shall be completed as soon as
35 reasonably possible after the temporary use is concluded.

36
37 3) The temporary laydown area shall not (1) be located within an area identified as Category 1
38 or 2 habitat; or (2) contain threatened or endangered species identified in Exhibit Q. It is
39 expressly understood that the approval is only for temporary uses and no permanent uses will
40 be allowed in these areas.

41
42 4) NWN shall restore, as nearly as possible, to its former condition any agricultural land and
43 associated improvements that are damaged or otherwise disturbed by the siting, maintenance,
44 repair or reconstruction of the facility. Mitigation conditions applicable under the Council's
45 Soils standard, OAR 345-022-0022, shall apply to any temporary laydown area.

46
47 *Protected Areas Standard*

- 1) During construction of the pipeline Willamette River crossing, NWN shall protect riparian areas on both sides of the river by locating all bore holes for directional drilling at least 1,300 feet from the river's edge.

Retirement and Financial Assurance Standard

- 1) Prior to beginning construction, the certificate holder shall submit to the State of Oregon through the Council a bond or letter of credit in the amount of \$700,000 (in 2001 dollars) naming the State of Oregon, acting by and through the Council, as beneficiary or payee.
- a) The calculation of 2001 dollars shall be made using the U.S. Gross Domestic Product Implicit Price Deflator, as published by the U. S. Department of Commerce, Bureau of Economic Analysis, or any successor agency (the "Index"). The amount of the bond or letter of credit account shall increase annually by the percentage increase in the Index and shall be pro-rated within the year to the date of retirement. If, at any time, the Index is no longer published, the Council shall select a comparable calculation of 2001 dollars. The form of the bond or letter of credit and identity of the issuer shall be subject to approval by the Council.
- b) The bond or letter of credit shall not be subject to revocation or reduction prior to the certificate holder's satisfaction of Condition (2) below.
- 2) Upon completion of construction, NWN may reduce the amount of the bond or letter of credit to \$86,000 (in 2001 dollars) naming the State of Oregon, acting by and through the Council, as beneficiary or payee (the "Retirement Fund"). The calculation of 2001 dollars shall be made using the Index. The form of the Retirement Fund and identity of the issuer of the bond or letter of credit shall be subject to approval by the Council. The Retirement Fund shall not be subject to revocation or reduction prior to retirement of the energy facility.
- 3) The certificate holder shall describe the status of the Retirement Fund in the annual report submitted to the Council, pursuant to OAR 345-026-0080.
- 4) If the project is halted prior to completion, NWN shall restore 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.
- 5) Prior to termination of the Site Certificate, NWN shall retire the 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.
- (c) If necessary, revegetate the area, including pipeline right of ways, to prevent erosion and encourage habitat development,
- (c) 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.
- 6) If the Council finds that NWN has permanently ceased construction or operation of the SMPE without retiring the SMPE according to a final retirement plan approved by the Council as described in OAR 345-027-0110, the Council shall notify NWN and request that

1 NWN submit a proposed final retirement plan to the Office within a reasonable amount of
2 time, not to exceed 90 days. If NWN does not submit a proposed final retirement plan by the
3 specified date, the Council may direct the Office to prepare a proposed final retirement plan
4 for the Council's approval. Upon the Council's approval of the final retirement plan, the
5 Council may draw on the bond or letter of credit described in condition (1) of this section to
6 restore the site to a useful, non-hazardous condition according to the final retirement plan, in
7 addition to any penalties the Council may impose under OAR Chapter 345 Division 29. If
8 the amount of the bond or letter of credit is insufficient to pay the actual cost of retirement,
9 the certificate holder shall pay any additional cost necessary to restore the site to a useful,
10 non-hazardous condition. After completion of site restoration, the Council shall issue an
11 order to terminate the site certificate if the Council finds that the SMPE has been retired
12 according to the approved retirement plan.
13

14 *Fish and Wildlife Habitat Standard*

15 General

- 16 1) NWN shall take appropriate and reasonable measures to first avoid, then reduce, then restore,
17 and then compensate for impacts to fish and wildlife habitat that result from construction and
18 operation of the proposed project consistent with that habitat category.
19
- 20 2) NWN shall reimburse the Office of Energy for costs associated with on-site construction
21 inspection monitoring by either OOE or ODFW.
22
- 23 3) NWN shall construct the pipeline within the construction corridor along the preferred
24 alignment (the "preferred alignment construction corridor") that was the basis for
25 Supplemental Table P-4 (May 15, 2002), Supplemental Table P-5 (March 5, 2002) and the
26 memo from Meehan, OOE, to Hayward, NWN, dated May 22, 2002, and the Hayward reply
27 to Meehan dated June 12, 2002. NWN may deviate from this construction corridor if there is
28 a conflict with other conditions of the site certificate, requirements of other state, local or
29 federal agencies, public health and safety, or if new information is discovered during
30 construction that was not known prior to issuance of the site certificate.
31
- 32 4) Where NWN must deviate from the preferred alignment construction corridor within the 200-
33 foot Preferred Corridor or an Alternative Corridor Segment, NWN shall obtain permission
34 from OOE for the following deviations: 1) any stream crossing that will not be bored as
35 shown in Supplemental Table P-4 (May 15, 2002); 2) any deviation that would result in
36 impact to a wetland with a higher status code than shown in the April 9, 2002 PHS table; 3)
37 any deviation that would result in impact to Category 3 upland habitat subtypes (as described
38 in Table P-1, Exhibit P) as shown in Supplemental Table P-5 (March 5, 2002). NWN shall
39 not begin construction in a deviation until it has notified OOE and the OOE has approved the
40 requested deviation.
41
- 42 5) To obtain permission from the OOE for a deviation from the preferred alignment
43 construction corridor, NWN must provide OOE the following information 20 days prior to
44 disturbing the deviation area: 1) the location of the requested deviation; 2) the habitat
45 categories and habitat subtypes of the original preferred alignment construction corridor
46 referenced to Supplemental Table P-4 (May 15, 2002), Supplemental Table P-5 (March 5,
47 2002) and the PHS April 9, 2002 table; 2) the habitat categories and habitat subtypes within
48 the requested deviation referenced to the tables listed above; 3) the number of trees greater

1 than 6-inch dbh that would be removed; 4) the reason for the deviation; and 5) any measures
2 that NWN proposes to use to limit impact to fish and wildlife habitat in the deviation.
3

- 4 6) The decision criteria for OOE approval of a deviation requested by NWN shall include: 1)
5 whether the deviation would result in a smaller area of impact; 2) whether the deviation
6 would result in impact to the same, a lower or a higher category habitat; and 3) whether
7 NWN provided appropriate documentation to OOE within the necessary time frame.
8
- 9 7) NWN shall plan, construct, operate, restore, maintain and monitor and the project site
10 consistent with the measures identified in its September 2001 Wetland Mitigation Plan,
11 Section 2.5 "Construction Techniques" pages 2-4 to 2-11; Section 4.0 "Conceptual
12 Mitigation Approach" pages 4-1 to 4-2; Section 5.0 "Proposed Conceptual Mitigation" pages
13 5-1 to 5-3; Section 7.0 "Monitoring" page 7-1; and Section 8.0 "Maintenance and
14 Contingency Plan" page 8-1.
15
- 16 8) NWN shall plan, construct, operate, restore, maintain and monitor the project consistent with
17 the measures identified in its September 2001 Habitat Mitigation Plan, Section 2.2
18 "Mitigation Goals" page 2-4; Section 2.5 "Construction Techniques" page 2-5; Section 4.0
19 "Proposed Conceptual Mitigation by Category" pages 4-1 to 4-3; Section 5.0 "Performance
20 Goals" page 5-1; Section 6.0 "Monitoring" page 6-1; and Section 7.0 "Maintenance Plan"
21 page 7-1.
- 22 9) NWN shall plan, construct, operate, restore, maintain and monitor the project consistent with
23 the measure identified in Exhibit P of its March 2001 application for site certificate as
24 supplemented by the June 2001 supplemental Exhibit P.
25
- 26 10) NWN shall construct the project so as to avoid disturbance to all Category 1 habitat and all
27 Category 2 permanent ponds.
28
- 29 11) NWN shall provide a net-benefit to Category 2 habitats that are disturbed by construction.
30 This may include, but is not limited to, placing large woody debris, clean sand, gravel and
31 rocks within the stream channel at or near the crossing location of Category 2 streams,
32 enhancing habitat quality by planting trees and other woody vegetation or by other measures
33 that provide a net benefit that is acceptable to the Office of Energy in consultation with the
34 Oregon Department of Fish and Wildlife.
35
- 36 12) NWN shall use Best Management Practices (BMPs) to confine construction-related
37 disturbance to the construction corridor.
38
- 39 13) NWN shall not disturb wetland areas, riparian areas, or waterways until it has obtained all
40 required section 401 and section 404 permits and approvals, including any required
41 authorization relating to a federally-listed threatened or endangered species. If the conditions
42 in the amended site certificate conflict with conditions imposed by the DEQ in its section 401
43 certification or the U.S. Army Corps in its section 404 permit, NWN shall consult with OOE
44 and ODFW to resolve the conflict before beginning construction
45

46 Pre-construction

- 47 14) NWN shall incorporate the conditions of the site certificate into its construction documents.
48

- 1 15) NWN shall provide a copy of its construction documents to the Office at least 30 days before
2 beginning ground-disturbing activity (such as clearing or grading the construction corridor).
3 These shall include five complete sets of detailed maps of the construction corridor that
4 clearly identify all Category 1, Category 2 and Category 3 habitat areas within and adjacent
5 to the construction corridor.
- 6 16) NWN shall mark the construction corridor to indicate areas where the corridor will be
7 restricted to avoid impact to wetlands, riparian areas, streams and other sensitive, important
8 or significant areas at least 30 days before any ground-disturbing activity (including clearing
9 of vegetation). OOE shall be notified when staking is completed.
- 10
- 11 17) NWN shall document pre-construction conditions at each Category 2 and 3 site within the
12 construction corridor prior to any ground disturbing activity. Documentation shall include an
13 Impact Inventory, including a description of the habitat category to be impacted, the number
14 of trees and sizes to be removed, percent native shrub coverage, the acreage of the impacts
15 and photographs of all stream crossings prior to clearing. The Impact Inventory will form the
16 basis of the mitigation and will be included in the Detailed Mitigation Plan. The Impact
17 Inventory shall be prepared by a qualified biologist.
- 18
- 19 18) NWN shall give the Office at least 7 days notice before beginning ground-disturbing activity.
- 20
- 21 19) NWN shall designate a qualified Environmental Inspector to work on all phases of the
22 project, including pre-construction documentation, pipeline construction, restoration, post
23 construction monitoring and preparation of the Detailed Mitigation Plan. The Environmental
24 Inspector shall have stop-work authority.
- 25
- 26 20) NWN shall, before beginning ground-disturbing activity, identify to the Office the key
27 personnel responsible for construction and environmental protection, including but not
28 limited to NWN environmental inspectors and the pipeline construction company's
29 environmental inspectors.
- 30
- 31 21) NWN shall, before beginning ground-disturbing activity, conduct training of key employees
32 and contractor personnel. Training shall cover applicable environmental regulations,
33 including site certificate conditions that relate to fish and wildlife habitat, and NWN
34 procedures for limiting impact to fish and wildlife habitat. NWN shall provide the Office
35 advance notice of the time and place of training sessions and shall allow Office
36 representatives to attend training sessions.
- 37

38 Construction

- 39 22) NWN shall use straw and straw bales of oats, wheat and red fescue that are certified to be
40 free of noxious (as that term is defined in ODA regulation) and nuisance weed contamination
41 for both temporary and permanent erosion control in all category 1, 2 and 3 habitats,
42 including uplands (Exhibit I, pages I-42, 43, 49, AIMP 18, 19).
- 43
- 44 23) NWN shall use topsoil protection measures (I-44, 45, AIMP 8) on all Category 2 and 3
45 habitats, including upland habitats.
- 46
- 47 24) NWN shall, as necessary, use soil compaction mitigation measures (I-45, AIMP 14) on all
48 Category 2 and 3 habitats, including uplands.
- 49

- 1 25) NWN shall use, if necessary, imported soil that is weed-free in Category 2 and 3 habitats,
2 including uplands. NWN shall, prior to construction, submit to the Oregon Office of Energy
3 the procedures it will use to ensure that imported soils are weed-free.
4
- 5 26) NWN shall, as necessary, use mitigation measures for wet soil conditions (I-48, AIMP 9) in
6 wetland areas.
7
- 8 27) NWN shall use measures in AIMP 11 to minimize damage to fish and wildlife habitat.
9
- 10 28) NWN shall segregate topsoil from subsoil and replace topsoil on top of subsoil in all
11 Category 2 and Category 3 habitat subtypes shown in Table P-1 (March 2001 Application),
12 except permanent ponds (PP2 and PP3).
13
- 14 29) NWN shall reduce and control increased sediment and turbidity by: 1) locating crossings to
15 avoid unstable stream banks and the need to remove large trees; 2) dewatering the
16 construction reach during construction (by using a dam-and-flume or hose-and-pump to pass
17 water around the construction area); 3) using erosion and sediment controls during and after
18 construction; 4) monitoring turbidity during construction; 5) stabilizing stream banks and
19 stream beds after construction; and 6) any other measures that may be appropriate.
20
- 21 30) NWN shall prevent stream bank instability after construction by: 1) locating crossings to
22 avoid unstable stream banks and the need to remove large trees; 2) stabilizing affected stream
23 banks and 3) using Best Management Practices (BMPs) to control slope erosion after
24 construction.
25
- 26 31) NWN shall prevent stream bed erosion after construction by restoring stream beds to their
27 original condition (substrate and gradient), using appropriate geotextile fabrics or other
28 measures, and adding large rocks and or gravels if needed.
29
- 30 32) NWN shall prevent loss of spawning substrate by restoring stream beds to their original
31 conditions, including replacing spawning gravels, and using appropriate measures to control
32 or prevent the movement of soil and silt into streams.
33
- 34 33) NWN shall reduce the direct impacts to wetland habitats by: 1) confining construction
35 activities to a 40-foot wide construction corridor and minimizing heavy equipment use within
36 wetlands to the extent practicable; 2) constructing in wetlands when they are dry, to the
37 extent practicable; 3) using construction mats when appropriate; 4) removing topsoil
38 (including plant roots) from the trench separately from subsoil, stockpiling topsoil and
39 subsoil separately and placing the topsoil (including plant roots) on top of the subsoil when
40 backfilling the trench; 5) installing water barriers along the pipeline trench and restoring
41 impermeable soils to prevent draining wetlands; 6) using Best Management Practices
42 (BMPs) to control erosion and turbidity and to prevent movement of loose soil beyond the
43 construction corridor.
44
- 45 34) Where wetlands and streams must be crossed, the pipeline will be routed through the least
46 sensitive portions of the wetland or stream if it is feasible. The scrub-shrub and forested
47 portions of wetlands and riparian areas shall be avoided to the greatest extent possible.
48

- 1 35) Construction staging areas shall be located in upland and clearly marked with signs and
2 temporary fencing.
3
- 4 36) Equipment refueling shall occur a minimum of 100 feet from any wetland or stream channel
5 and within a designated area. The refueling station should be equipped with appropriate
6 hazardous spill containment/clean up materials.
7
- 8 37) Construction through wetlands and streams will occur when water levels are low and during
9 the designated ODFW-approved “in-water work times” which are periods of low flow (July
10 1–October 1).
- 11 38) NWN shall complete each stream crossing within a 24-hour period, if practicable. If the
12 crossings requires more than 24 hours to complete, appropriate methods to allow upstream
13 and downstream fish passage for all life stages shall be implemented using methods approved
14 by ODFW.
15
- 16 39) NWN shall provide a qualified biologist on-site to prevent stranding fish and large aquatic
17 invertebrates in the diversion reach during construction across Category 2 and Category 3
18 streams. The qualified biologist must be authorized by NWN to halt construction if
19 necessary to prevent stranding fish and large aquatic invertebrates.
20
- 21 40) All flow diversions shall be removed and the hydrology of the site restored immediately after
22 completion of construction. The stream channel morphology shall be restored to pre-
23 construction conditions including riffle-pool morphology and stream channel substrate. In
24 streams with gravel bottoms, appropriate sized gravel from local sources will be used to
25 replace any stream gravels that are lost as a result of construction. Streambanks will be
26 stabilized and revegetated as soon as practical after construction is completed.
27
- 28 41) NWN shall locate stream crossings to avoid removal of large (>6” dbh) trees where
29 practicable and reduce the construction corridor from 80 feet in width to 40 feet within
30 riparian and wetland habitats.
31
- 32 42) NWN shall provide new woody debris in Category 2 habitats where appropriate and as
33 necessary to provide a net benefit in habitat quantity or quality as determined by a qualified
34 fisheries biologist. In-stream woody debris dimension, structure design and placement shall
35 conform to criteria outlined in A Guide to Placing large Wood in Streams, May 1995
36 (Oregon Department of Forestry and Oregon Department of Fish and Wildlife), as
37 determined by a qualified fisheries biologist.
38
- 39 43) In wetlands and riparian areas, vegetation that must be removed will be cut at ground level,
40 leaving the root system intact. Pulling tree stumps and associated grading activities will be
41 limited to those tree stumps that would directly interfere with trenching, pipe installation and
42 backfill.
43
- 44 44) Clay trench plugs will be used to prevent diversion of subsurface water from wetlands.
45 Trench plugs will be installed at each end of wetland crossings to prevent diversion of
46 subsurface water from wetlands and avoid changes to wetland hydrology. An environmental
47 monitor will inspect the pipeline trench to check for impermeable soil layers that may be
48 penetrated during trenching. If impermeable layers are found in the trench, they will be

1 avoided where this is possible, or repaired with clay plugs after the pipe is in place. Clay
2 barriers should be installed on each side of any wetland crossing site.

3
4 45) Matting will be used where this is necessary to support construction equipment in wetlands.
5 Heavy construction equipment may not be required to work from construction mats in
6 wetlands that are farmed, grazed or dry enough to support the equipment. In the event that
7 matting is necessary, all construction activities will be carried out from the matting.
8 Equipment will not be allowed in the wetland off the mats, at any time. The mats will be
9 cleaned and inspected prior to placing in the wetland and mats with foreign material will not
10 be used.

11
12 46) Any trees felled within category 2 and 3 habitats shall remain within the habitat site as
13 woody debris. Trees felled within the riparian area shall be used on site for instream habitat
14 structures. If possible the trees should be pushed over to maintain the root ball with the tree
15 trunk.

16
17 47) NWN shall replant appropriate species and numbers of trees or shrubs as indicated by the
18 Impact Inventory in all Category 2 and Category 3 habitats in which NWN removes trees or
19 shrubs. Shrubs or trees less than 6-inch dbh shall be replaced at a 1-to 1 ratio. Trees equal to
20 or greater than 6-inch dbh shall be replanted on a replacement ratio as follows:

21

Size of Tree to be removed (inches dbh)	Number of trees to be planted (24-36" height)
6 to 12	4
13-18	6
19-24	8
25-30	10
Over 30	12

22
23 48) NWN may salvage and restore native plants removed intact from the pipeline trenching area.

24
25 49) NWN shall plant a minimum of 500 trees in the wetlands, distributed throughout the
26 construction easement. (See DSL Removal/Fill permit #24064-RF, condition 10b). The
27 trees and shrubs that are replaced as per the Impact Inventory shall count toward this
28 quantity.

29
30 50) NWN shall, at an appropriate location, thoroughly clean each unit of construction equipment
31 with high-pressure washing before the initial move of that unit to the construction site. NWN
32 shall, at an appropriate site, clean all construction mats that have been previously used with
33 high-pressure washing before moving them to the construction site or placing them in a
34 wetland.

35
36 51) NWN shall, at appropriate locations, thoroughly clean each unit of construction equipment
37 with high-pressure washing before working in category 2 or 3 wetlands.

38
39 52) NWN shall restore the construction corridor in category 2 and 3 habitats by replanting and
40 seeding with an approved seed mix to re-establish vegetation. The following seed mixes are
41 approved for use. Substitutions to these mixes must be approved by ODFW and OOE.

1
2
Wetland Seed Mix

Botanical Name	Common Name	Form	lbs./ac PLS*
<i>Agrostis exarata</i>	spike bentgrass	Seed	4
<i>Festuca rubra</i>	Red fescue	seed	5

3 *PLS=pure live seed; depending on assessed germination rates, provides starting point for
4 seeding rates

5
6
Upland Seed Mix

Botanical Name	Common Name	Form	lbs./ac PLS*
<i>Bromus carinatus</i>	California brome	seed	3
<i>Elymus trachycaulus</i>	Slender wheatgrass	seed	5
<i>Festuca rubra</i>	Red fescue	seed	5

7 *PLS=pure live seed; depending on assessed germination rates, provides starting point for
8 seeding rates

9
10 53) The following actions must be performed immediately after backfilling the trench in trenched
11 areas: (1) installation of erosion control measures; (2) seeding and mulching of exposed soils;
12 (3) returning all stream beds and banks to pre-construction grade; (4) restoration of salvaged
13 plant materials and; (5) placement of woody debris.

14
15 54) NWN must plant trees and shrubs, as indicated by the Impact Inventory and the Detailed
16 Mitigation Plan approved by OOE, within 1 year of construction.

17
18 55) NWN shall prepare and submit to OOE an Impact Inventory for each corridor segment within
19 30 days following the completion of construction within that segment of the alignment. The
20 inventory shall include a description of the habitat category impacted, the number of trees
21 and shrubs to be removed, the size of the trees removed (greater than or less than 6"dbh), the
22 acreage of impacts and photographs of all stream crossings prior to clearing.

23
24 56) In the event of a release of drilling mud as a result of boring operations during pipeline
25 construction, NWN shall stop the boring operation until a siltation fence is placed around the
26 release point. NWN shall insure that the release point is fully encircled with siltation fencing
27 and that the fencing effectively contains the released mud. The drilling mud will be allowed
28 to vent into the enclosure. NWN shall pump drilling mud from the enclosed area as needed
29 until the boring operation is completed. If the enclosure becomes nearly full, NWN shall
30 remove the drilling mud via a vacuum truck or pump depending on accessibility to the site.
31 NWN shall leave the siltation fencing in place during the boring, back reaming, and pipe-
32 pulling procedures, and until the vent has sealed. NWN shall not remove the enclosure until
33 all evidence of the release has ceased.

34
35 Post-Construction

36 57) NWN shall prepare and submit to OOE a Draft and Final Detailed Mitigation Plan (DMP)
37 within 60 days following the completion of the date of the final hydrostatic test.

38
39 58) In the DMP, NWN shall:

- 40 (a) include the Impact Inventory for all segments of the pipeline;
41 (b) describe mitigation measures undertaken during the construction phase;

- 1 (c) propose specific additional mitigation measures that will achieve the fish and wildlife
2 habitat mitigation goals and standards of OAR 635-415-0025 and prevent harm to the
3 federally listed Upper Willamette River steelhead trout and Upper Willamette River
4 chinook salmon; including species, sizes, and quantities of proposed plantings;
5 (d) identify contingency measures, and remedial measures to ensure success criteria are met;
6 and
7 (e) provide a realistic schedule for implementation of the DMP.
8

9 59) The Office, in consultation with other agencies, shall review the Draft DMP and provide
10 NWN with its comments, including changes to the DMP, if necessary within 30 days of
11 receipt of the DMP.
12

13 60) Within 30 days following the receipt of OOE comments, NWN shall prepare and submit to
14 OOE a Final DMP that incorporates agency comments. The Final DMP shall provide the
15 basis for the monitoring report.
16

17 61) NWN shall monitor the results of implementing the Final DMP and shall provide annual
18 reports to the Office and other agencies for a minimum of three years. The monitoring reports
19 shall include the Impact Inventory and provide documentation about restoration/enhancement
20 methods, survival of salvaged and planted plants, assessment of streambank stability, net
21 benefit in category 2 habitats, photographs from established pre-construction points,
22 including all stream crossings, discussion of success criteria and remedial actions. The
23 reports shall be prepared by a qualified biologist and submitted to the Office and ODFW by
24 December 1.
25

26 62) Success Criteria shall include meeting the ODFW fish and wildlife mitigation goal for each
27 habitat category. In addition, restored areas shall, after 3 years, have: (1) the same number of
28 native trees and shrubs as calculated for replacement in the Impact Inventory and according
29 to the required replacement ratios (this may include native plant volunteers); (2) less than 20
30 percent coverage of reed canary grass and noxious weeds, as defined by Oregon Department
31 of Agriculture and local counties.
32

33 63) NWN shall take remedial actions if monitoring shows that implementation of the Final DMP
34 is not successful and monitoring shall continue until the success criteria is met.
35

36 Operation and Maintenance

37 64) NWN shall allow native vegetation, including trees, within the Maintenance Easement,
38 except in a ten-foot-wide zone over pipeline, in all Category 2, Category 3 and Category 4
39 habitats.
40

41 65) NWN shall control vegetation within Maintenance Easement by mechanical means wherever
42 practicable. NWN shall not use chemical spray within 100 feet of water bodies, including
43 wetlands.
44

45 66) NWN shall notify OOE, DSL and ODFW 15 days prior to any repair or maintenance activity
46 within category 1, 2 or 3 habitats. Notification shall include site location, habitat category,
47 habitat subtype (as described in Table P-1 of the ASC), proposed activity, proposed measures
48 to limit impacts to fish and wildlife habitat, and proposed restoration.
49

1 *Threatened and Endangered Species*

- 2 1) NWN shall avoid removing medium and large trees in upland areas. If NWN cannot avoid a
3 medium or large tree with potential to support bald eagles, NWN shall have a qualified
4 biologist survey the affected area for evidence of bald eagle use. Trees that are determined to
5 provide nesting or roosting habitat for bald eagles will be identified and NWN shall avoid
6 them during construction.
7
- 8 2) NWN shall schedule construction within one mile of documented or newly discovered bald
9 eagle nest sites to avoid the critical breeding and rearing period (January 1 to August 31) for
10 this species.
11

12 *Historic, Cultural and Archaeological Resources*

- 13 1) Before beginning construction of the pipeline, NWN shall certify that all NWN and contract
14 supervisory personnel with construction responsibility are trained in the identification of
15 cultural resources. NWN shall make plans, subject matter and the schedule for this training
16 available to OOE before commencement of the training program.
17
- 18 2) During construction of the pipeline, in the event any additional “archaeological sites” or
19 “archaeological objects” are identified, NWN shall cease all ground-disturbing activities in
20 the area until a qualified archeologist can evaluate the significance of the find. If the
21 archeologist determines that the materials are significant, NWN shall make recommendations
22 to the Council for mitigation in consultation with SHPO, the Office, and other appropriate
23 parties. Mitigation measures shall include avoidance or data recovery. NWN shall not
24 restart work in the affected area until it has demonstrated to the Office that it has complied
25 with the archeological permit requirements administered by SHPO as set forth in OAR
26 Chapter 736, Division 51 (on public land) or has obtained the landowner’s written
27 permission to proceed (on private land.)
28
- 29 3) During construction of the pipeline, NWN shall route the pipeline as described in its
30 application for site certificate and its responses to requests for additional information.
31 Specifically, NWN shall route the pipeline as follows, unless NWN, in consultation with a
32 qualified archaeologist, identifies another location which has less impact to these sites: in the
33 vicinity of site S-1, within the existing 16-inch SMF pipeline corridor on the western
34 boundary of the site; in the vicinity of site 35WN33, within the existing pipeline corridor on
35 the west and south edges of the site; in the vicinity of site 35WN35, within the existing
36 pipeline corridor, offset from the 16-inch SMF pipeline by 10 feet; in the vicinity of site
37 ORWN1/35WN34, west of the existing pipeline corridor and by means of boring under the
38 area; in the vicinity of site S-2, east of the eastern boundary of the site; and in the vicinity of
39 site S-5, in fill and previously disturbed materials under the road within the Barlow Road
40 right-of-way. NWN shall not disturb archaeological sites S-3 and S-4.
41
- 42 4) During construction of the pipeline, NWN shall avoid any disturbance within archaeological
43 sites S-1, S-2, S-3, S-4, 35WN33 and ORWN1/35WN34. If such avoidance result in adverse
44 impact to jurisdictional wetlands or habitat described in Exhibit P of the ASC, causes the use
45 of additional land in the EFU zone outside public right of way, creates a conflict with other
46 Council standards, or creates a condition adverse to human health and safety, NWN shall
47 obtain approval from OOE, in consultation with SHPO, before causing any disturbance
48 within any of these archaeological sites.
49

- 1 5) During construction of the pipeline, NWN shall retain a qualified archaeologist to monitor
2 construction activity in the vicinity of archaeological sites S-1, S-2, S-3, S-4, S-5, 35WN33,
3 35WN35, and ORWN1/35WN34 and all grading and excavation activities in the vicinity of
4 isolated finds I-1 through I-13 to ensure that archaeological resources in these locations are
5 not disturbed.
6
- 7 6) Before beginning construction, NWN shall conduct an archaeological survey of the
8 temporary laydown areas and shall submit a report of the survey to the Office of Energy. If
9 archaeological objects or archaeological sites are discovered in the temporary laydown areas,
10 NWN may not begin construction of that portion of the pipeline until NWN has submitted to
11 the Office a mitigation plan consistent with the other conditions of this site certificate. In
12 preparing the mitigation plan, NWN shall consult with SHPO, the Office, and other
13 appropriate parties.
14

15 *Recreation Standard*

- 16 1) Construction on Brookman road shall be halted after 5:45 PM if construction noise is audible
17 from Stella Olsen park.
18

19 *Public Services Standard*

- 20 1) NWN shall obtain all required permits from the Oregon Department of Transportation for
21 construction in public road right-of-way and shall conform to the Standard Specifications for
22 Highway Construction , Oregon Department of Transportation, Section 00220 –
23 Accommodation For Public Traffic. Ambulances, fire trucks and police shall be afforded
24 immediate passage.
25
- 26 2) NWN shall perform any road work under permit provisions provided by the affected county
27 for work within the right-of-way along county roads. NWN shall develop and implement
28 traffic control planning measures as part of the county permitting process. NWN will have
29 overall responsibility for assuring that all contractors on the Project comply with these permit
30 conditions. NWN shall ensure contractor compliance through construction inspection
31 programs and construction management personnel.
32
- 33 3) NWN will provide a detailed traffic control plan for each phase of work, showing signs and
34 cones, certification and use of flaggers, and proposed methods of lane closures. NWN will
35 be responsible for safely accommodating public traffic lanes within the construction area.
36 NWN shall submit these plans to the ODOT District manager prior to construction along
37 state roads or to the county road department prior to construction along county roads.
38
- 39 4) NWN shall provide the county road department in each affected county with final
40 construction drawings prior to start of construction in that county. Project construction shall
41 be coordinated with the county's future paving and culvert replacement programs.
42
- 43 5) NWN shall coordinate with school districts along the construction corridor to manage any
44 potential school bus delays during project construction in months when school is in session.
45

46 *Waste Minimization Standard*

- 47 1) NWN shall transport construction waste materials to an appropriate recycling facility or to an
48 approved sanitary landfill for nonrecyclable goods. NWN shall collect scrap steel and
49 welding rod for transportation to a recycling facility. Geotextile and straw bales shall be

1 transported to an approved landfill.

- 2
- 3 2) Water used for pressure testing shall be disposed of in a manner consistent with a WPCF
- 4 permit issued by DEQ.
- 5
- 6 3) NWN shall minimize the use of water by recycling water for the hydrostatic testing and
- 7 directional drilling process. Bentonite used the drilling process shall be recycled to the extent
- 8 practical.
- 9

10 **E. Conditions Related to Public Health and Safety, OAR Chapter 345, Division 24**

11 Under ORS 469.401(2), EFSC must impose conditions in the site certificate for the protection of

12 public health and safety. Throughout this order are conditions related to other decisional criteria

13 that are ultimately intended to protect public health and safety. The following conditions protect

14 public health and safety specifically with regard to EFSC standards for surface facilities related

15 to underground natural gas storage and natural gas pipelines.

16

- 17 1) The pipeline shall be constructed and operated in accordance with 49 CFR 192 regulations,
- 18 and shall include isolation valves as specified in 49 CFR 192.179. Twenty four inch valves
- 19 and cross ties shall be installed adjacent to the valves on the existing 16-inch pipeline.
- 20
- 21 2) NWN shall maintain a program to monitor the pipelines to ensure protection of public health
- 22 and safety, including but not be limited to:
- 23 (a) pressure sensing devices positioned on the pipelines at Miller Station to relay information
- 24 to both Miller Station and the Portland gas control centers.
- 25 (b) high and low pressure alarms monitored on a 24 hour basis to detect and locate areas
- 26 where pressure variations may indicate abnormal conditions, and
- 27 (c) emergency response personnel on duty 24 hours a day, at Miller Station or in Portland,
- 28 trained to respond to situations that require immediate attention.
- 29
- 30 3) The following specifications are deemed commitments by NWN:
- 31 a) NWN shall specify pipe that meets the requirements for Class 3 locations as defined at 49
- 32 CFR 192.5 (March 15, 1999). NWN shall specify .375 inch wall thickness and minimum
- 33 52,000 lb. tensile strength in all sections of the pipeline.
- 34 b) NWN shall perform 100% X-ray testing of all welds on the 24 inch pipeline.
- 35 c) NWN shall maintain at least 24 inches of clearance between the pipeline and any
- 36 underground structure, including the existing 16 inch line.
- 37 d) NWN shall maintain a minimum of 48 inches of pipe cover in all locations, and 60 inches
- 38 in timberland or cultivated land.
- 39 e) NWN shall hydrostatically test the pipeline at a minimum of 1080 psig in all sections.
- 40 f) NWN shall use at least a 12 mil thick fusion bonded epoxy (FBE) coating on the pipeline,
- 41 except that pipe used for road crossings shall have a 25 mil FBE coating.
- 42
- 43 4) Program Development Requirements: Prior to commencement of operations on the 24-inch
- 44 pipeline, NWN shall develop and obtain OOE approval for the following programs:
- 45 a) Training of personnel responsible for patrolling the pipeline, with emphasis on early
- 46 recognition of conditions indicating increased landslide hazard.
- 47 b) Accelerated pipeline surveillance program with provisions for increased surveillance in
- 48 extreme weather years. The program shall include recommendations by a geotechnical

1 engineer for locations that warrant accelerated surveillance in excess of the periodic
2 patrolling requirements for the pipeline in general.

- 3 c) Training of personnel responsible for drainage control, with emphasis on identifying
4 areas where pipeline installation could increase the drainage hazard and on implementing
5 effective solutions.
- 6 d) Continuing investigation of internal inspection devices (IID's) or "smart pigs" with the
7 capability to detect internal flaws, corrosion, and other pipeline defects, and development
8 of criteria for determining the utilization of IID's or any other appropriate technologies
9 for detecting flaws, corrosion and other indications that the likelihood of pipeline failure
10 may have increased. Such criteria shall, at a minimum, be consistent with federal and
11 OPUC regulations.
- 12 e) Development of criteria to identify the level at which NWN will excavate pipe sections
13 for stress relief, based on strain gauge readings.

- 14
- 15 5) NWN shall design and construct the pipeline substantially in accordance with the
16 representations in ASC Appendix B-1, ASC Exhibit BB and the NWN July 2001 response to
17 OOE's May 2001 Request for Additional Information (questions on exhibit BB). In the
18 event of any conflict between these commitments and other requirements, 49 CFR Part 192
19 shall prevail.
- 20

21 **F. Permitting Requirements of Agencies Other than EFSC**

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

- 24
- 25 1) Removal/Fill permits from the Division of State Lands, subject to the conditions listed in
26 section IV.D.1 of the Order.
- 27
- 28 2) Limited Water Licenses from the Water Resources Department, subject to the conditions
29 listed in section IV.D.2 of the Order.
- 30
- 31 3) Water Pollution Control Facilities (WPCF) permits from Department of Environmental
32 Quality, subject to the conditions listed in section IV.D.3 of the Order.
- 33
- 34
- 35

36 Issued: _____

37 David Stewart-Smith
38 Administrator, Resources Division
39 Oregon Office of Energy
40