BEFORE THE
ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON

In the Matter of the Request for Amendment #12 of the Mist Underground Natural Gas Storage Facility Site Certificate	))))	TEMPORARY ORDER ON AMENDMENT #12 OF THE SITE CERTIFICATE

August 18, 2017

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I. INTRODUCTION

The Energy Facility Siting Council (EFSC or Council) issues this temporary order in accordance with Oregon Revised Statute (ORS) 469.405 and Oregon Administrative Rule (OAR) 345-027-0080 for the request by Northwest Natural Gas Company (NW Natural or certificate holder) for Amendment #12 of the Mist Underground Natural Gas Storage Facility Site Certificate (RFA #12). RFA #12 was submitted to the Oregon Department of Energy (ODOE or Department) on August 3, 2017.

The certificate holder requested Council approval for a new limited water use license authorizing use of water from Beaver Slough from a diversion point not previously considered by the Council. The water would be used for horizontal directional drilling (HDD) and dust abatement during construction of the North Mist Transmission Pipeline occurring within the Seeley Mint Farm property, where the property owner requests that water used during construction be obtained from a specific diversion point to minimize potential contamination to an organic agricultural operation.[1]

RFA #12 includes a request for expedited review pursuant to OAR 345-027-0080. On August 4, 2017, the Council Chair issued a determination granting expedited review for RFA #12. In the Chair's determination, he made affirmative findings related to the OAR 345-027-0080(2) criteria including that a delay in the Council's decision on the amendment request would unduly harm the certificate holder and that the scope of the amendment request would not be likely to result in a significant new adverse impact to a resource protected by a Council standard. Expedited review requires certain timelines found in the general amendment review process, and allows the Council to issue a temporary order temporarily amending the site certificate, pending the final amendment decision.

Based upon review of RFA #12 and the proposed order, the Council approves RFA #12 and issues a temporary order temporarily amending the Mist Underground Natural Gas Storage Facility (Mist Facility) Site Certificate (site certificate) subject to the existing site certificate conditions and new conditions set forth in this temporary order. The Council issues a temporary order in accordance with ORS 469.405 and OAR 345-027-0080.

[1] The North Mist Transmission Pipeline is a component of the North Mist Expansion Project, which was reviewed and approved by the Council in April 2016 as the Mist Underground Natural Gas Storage Facility Site Certificate Amendment #11.

I.A. Name and Address of Certificate Holder

Northwest Natural Gas Company
220 NW Second Avenue
Portland, Oregon 97209

Individuals Responsible for Submitting the Request:

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Portland, Oregon 97205

I.B. Description of the Facility

The Mist Facility includes naturally occurring underground natural gas storage reservoirs, which NW Natural has retrofitted to allow pipeline quality natural gas injection and underground storage during off-peak periods and withdrawal when market demand exceeds available supplies from other sources. Related and supporting surface facilities currently include compressors, pipelines, control equipment, dehydration and auxiliary systems, most of which are located at NW Natural's Miller Station. Other related surface facilities include gathering lines and facilities for NW Natural maintenance and operations staff.

Council approved site certificate Amendment #11 in April 2016, which included the North Mist Expansion Project comprised of construction and operation of a new compressor station, build-out of the Adams reservoir as a new underground gas storage reservoir, and an approximately 12-mile natural gas transmission pipeline to connect the new compressor station and gas reservoir with the Portland General Electric (PGE) Port Westward Industrial Park, north of Clatskanie. Upon completion of the North Mist Expansion Project, the Mist Facility will have a combined maximum throughput of 635 million standard cubic feet per day of natural gas.

I.C. Description of Facility Location

The Mist Facility encompasses approximately 5,472 acres and is located in Columbia County. The Mist Facility includes the Bruer/Flora underground gas storage reservoirs and the Calvin Creek underground gas storage area. The Bruer/Flora reservoirs and Miller Station are located north of the Nehalem River. The Calvin Creek underground gas storage area is located south of the Nehalem River, approximately two and one-half miles south of Miller Station. Twin 16-inch pipelines cross under the Nehalem River and connect the Calvin Creek area with Miller Station.

As described in Section I.B, the Council approved the North Mist Expansion Project through Amendment #11 in April 2016. Approval of Amendment #11 authorized new area to the site boundary and new facility components including addition of the Adams reservoir as a new underground storage area, and the installation of injection/withdrawal pipelines to connect the underground storage reservoir in the Adams storage area to a new compressor facility located approximately 2.2 miles northwest of Miller Station (approximately 5 miles by road), and the construction of an approximately 13-mile, up to 24-inch high-pressure natural gas transmission pipeline between the new compressor station and PGE's Port Westward Industrial Park.

The location of facility components and facility site boundary are represented in Figure 1.

I.D. Description of New Water Diversion Location

The amendment request sought approval for a new limited water use license for use of construction water from a new, but existing diversion point, not previously approved by the Council or through a previously approved limited water use license. The location of the new, but existing diversion point is to the north and east on Beaver Slough, close to PGE's Beaver Generating Station as presented in Figure 2 below (see "Seeley Mint Farm Diversion Point").

Figure 1: Site Boundary

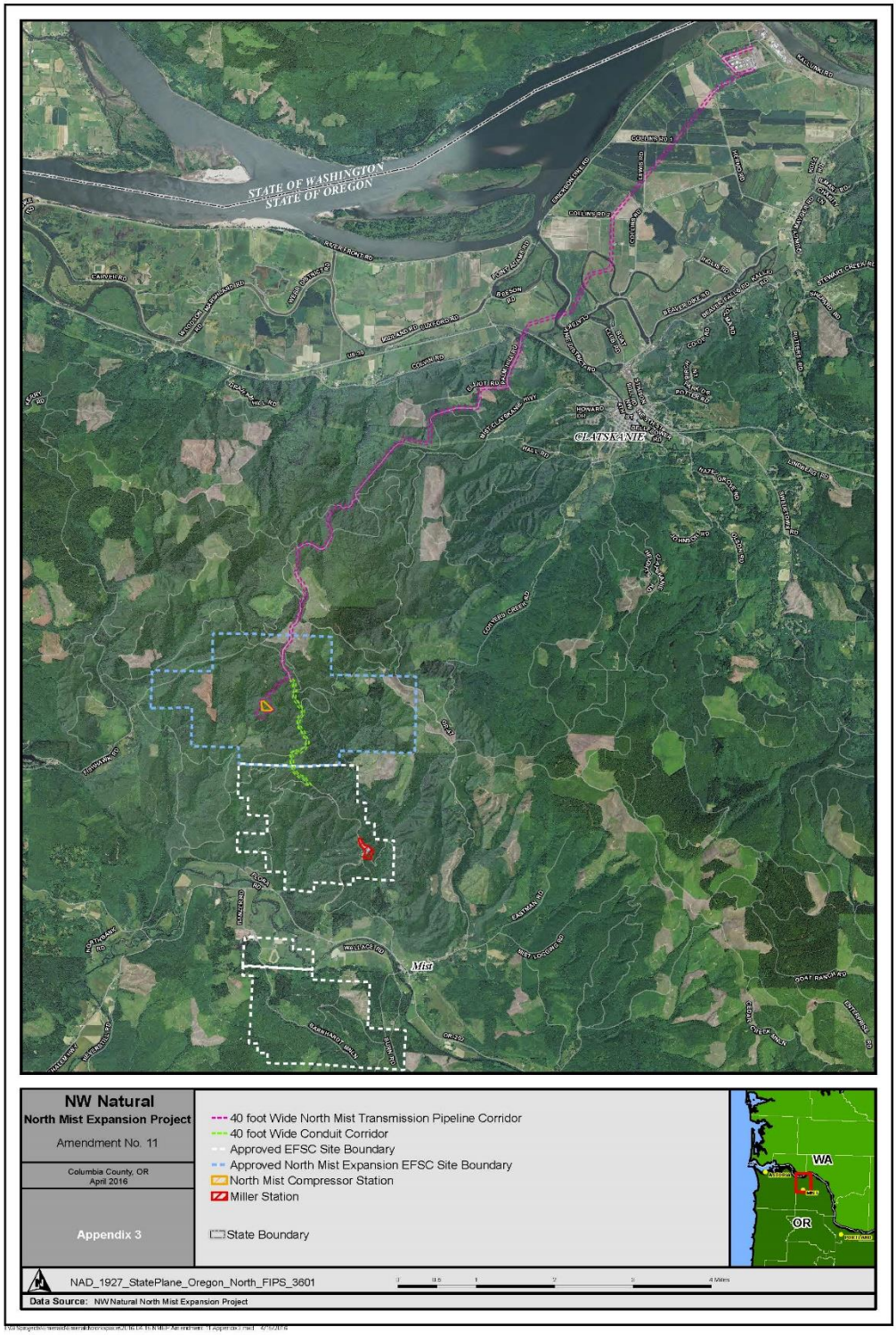
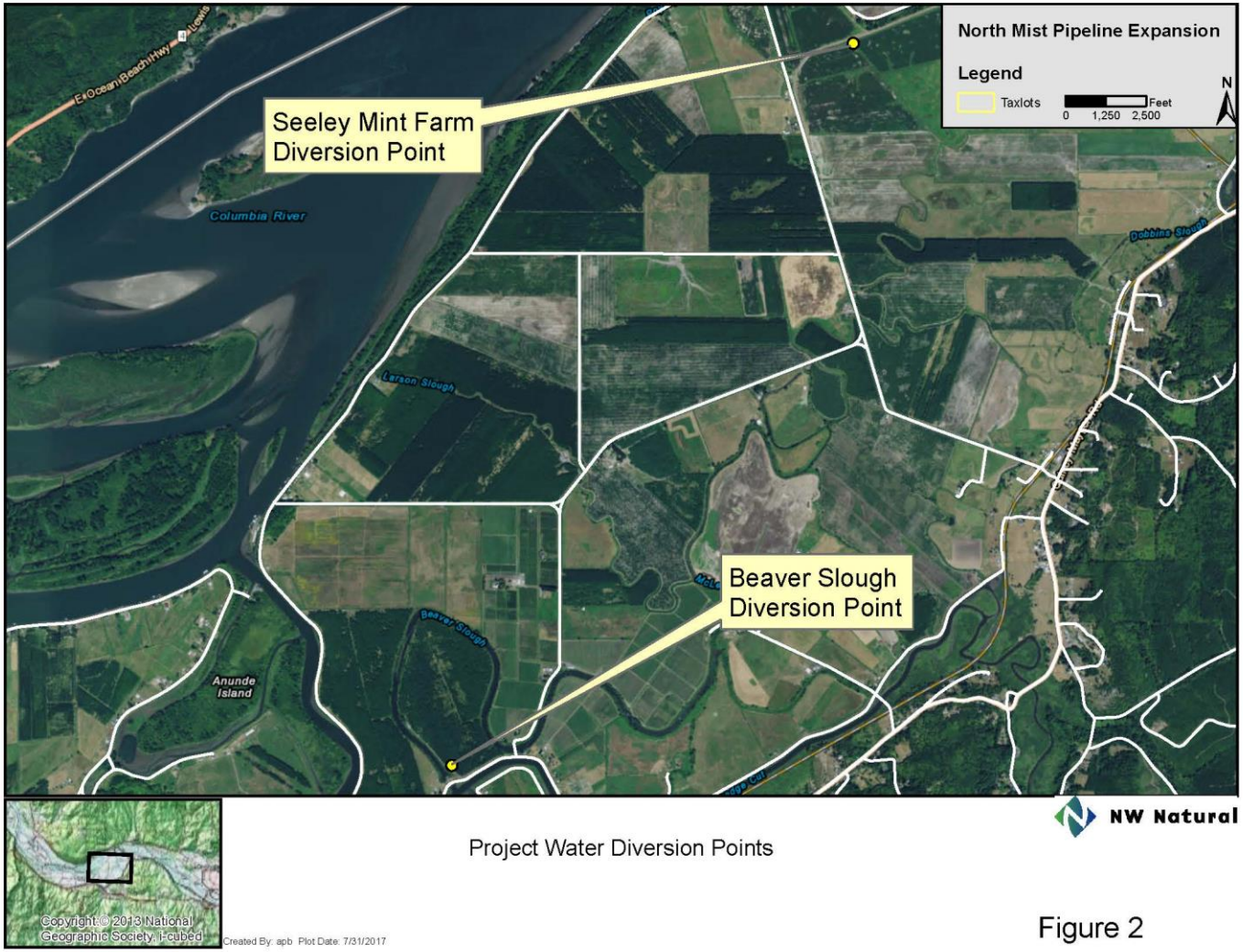


Figure 2: New Water Diversion Point Location (Seeley Mint Farm Diversion Point)



I.E. Temporarily Approved Site Certificate Amendment

NW Natural sought Council approval of a new limited water use license in order to temporarily use water from a new, but existing diversion point not previously considered in Amendment #11. Limited water use licenses are permits administered by the Oregon Water Resources Department, but for EFSC-jurisdictional energy facilities such as the Mist Facility, limited water use licenses are included in and governed by the site certificate, and subject to Council review, consideration, and authorization. In Amendment #11, Council reviewed and approved two limited water use licenses associated with construction of the North Mist Expansion Project. One of those limited water use licenses authorized NW Natural to use up to 4.46 million gallons of water from Beaver Slough from a single diversion point. In the Final Order on Amendment #11, Council included five conditions related to the limited use license at Beaver Slough.

The limited water use license requested in RFA #12 allows NW Natural to use water also withdrawn from Beaver Slough, but at a new, existing point of diversion. Importantly, NW Natural's new limited water use license does not authorize any additional water withdrawal from Beaver Slough for the North Mist Expansion Project; meaning, the total water use authorized for withdrawal from Beaver Slough has not changed from what Council previously considered and approved in Amendment #11, 4.46 million gallons.

The new limited water use license is necessary because the property owner of the Seeley Mint Farm, whose property is located along the route of the North Mist Transmission Pipeline, informed NW Natural in July 2017 that withdrawal from the previously approved Beaver Slough diversion point (see "Beaver Slough Diversion Point," Figure 2) could damage sensitive agricultural crops, introduce contaminants, and potentially interfere with farm operations. The property owner, therefore, requested that NW Natural utilize a different, existing water diversion point located further north and east on Beaver Slough (see "Seeley Mint Farm Diversion Point," Figure 2), resulting in use by NW Natural of two diversion points within Beaver Slough during construction of the North Mist Expansion Project..

As described by NW Natural in RFA #12, the Seeley Mint Farm operates an organic mint farm and associated processing facility which would be crossed under by NW Natural, using HDD, to install the North Mist Transmission Pipeline. The Seeley Mint Farm has an existing water right and withdrawal pump from Beaver Slough, and NW Natural would use water from this existing infrastructure. The new limited water use license authorizes NW Natural to use water from this source for construction of the North Mist Expansion Project components, as the Seeley's water license does not authorize this type of use. The limited water use license authorizes water use until the end of November 2017.

RFA #12 did not include any additional modifications to the approved facility. It did not expand the site boundary or in any other way change the previous Council authorizations of the Mist Facility, including the North Mist Expansion Project. RFA #12 was limited to only the requested

limited water use license as described here, which requested water to be withdrawn from the same water source, Beaver Slough, as was previously authorized by Council and in a total quantity that is no more than was previously authorized by Council, 4.46 million gallons.

II. THE AMENDMENT PROCESS

Under ORS 469.405, "a site certificate may be amended with the approval of the Energy Facility Siting Council." The Council has adopted rules for determining when a site certificate amendment is necessary (OAR 345-027-0030 and -0050) and rules setting out the procedure for amending a site certificate (OAR 345-027-0060 and -0070). While RFA #12 is being processed under expedited review (OAR 345-027-0080), the Council's review criteria and standards remain the same as under a non-expedited amendment review.

OAR 345-027-0070 Review of a Request for Amendment

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(10) In making a decision to grant or deny issuance of an amended site certificate, the Council shall apply the applicable substantive criteria, as described in OAR 345-022-0030, in effect on the date the certificate holder submitted the request for amendment and all other state statutes, administrative rules, and local government ordinances in effect on the date the Council makes its decision. The Council shall consider the following:

(a) For an amendment that would change the site boundary or the legal description of the site, the Council shall consider, for the area added to the site by the amendment, whether the facility complies with all Council standards;

(b) For an amendment that extends the deadlines for beginning or completing construction, the Council shall consider:

A. Whether the Council has previously granted an extension of the deadline;

B. Whether there has been any change of circumstances that affects a previous Council finding that was required for issuance of a site certificate or amended site certificate; and

C. Whether the facility complies with all Council standards, except that the Council may choose not to apply a standard if the Council finds that:

i. The certificate holder has spent more than 50 percent of the budgeted costs on construction of the facility;

ii. The inability of the certificate holder to complete the construction of the facility by the deadline in effect before the amendment is the result of unforeseen circumstances that are outside the control of the certificate holder;

iii. The standard, if applied, would result in an unreasonable financial burden on the certificate holder; and

iv. *The Council does not need to apply the standard to avoid a significant threat to the public health, safety or the environment;*

(c) For any amendment not described above, the Council shall consider whether the amendment would affect any finding made by the Council in an earlier order.

(d) For all amendments, the Council shall consider whether the amount of the bond or letter of credit required under OAR 345-022-0050 is adequate.

OAR 345-027-0070(10)(c) requires that for amendments that are not related to construction deadline extensions or expansion of a site boundary, the Council consider whether the amendment would affect any finding made by Council in an earlier order. In this case, RFA #12 included components that must be reviewed under this provision, specifically related to authorization of an additional, new, limited water use license. The Council assessed the amended facility against all applicable Council standards below; however, considering the scope of the requested amendment would not change the total water withdrawn from Beaver Slough, would use existing infrastructure, and would only be for a very limited period (until end of November, 2017), the Council identified and evaluated, in Section III.A and Section III.B of this order, the specific standards that would likely be impacted by the requested amendment, and the standards that would not be likely to be impacted.

II.A. Procedural History

EFSC issued the original Site Certificate for the Mist Facility in June 1981. The Council previously approved eleven amendments to the site certificate. This order evaluates the twelfth site certificate amendment request. The eleventh amendment, approved by Council in April 2016, authorized what is known as the North Mist Expansion Project (NMEP). NMEP is currently under construction. RFA #12, as described throughout this order and in the request for amendment, is necessary to address exigent circumstances that have arisen related to the temporary use of water during construction.

On August 3, 2017, the Department received the certificate holder's submittal of RFA #12, including a request for expedited review pursuant to OAR 345-027-0080. On August 4, 2017, the Council Chair issued a determination granting expedited review for RFA #12. In granting expedited review, the Chair found that, based on the certificate holder's representations, a delay in the decision on RFA #12 would unduly harm the certificate holder by either resulting in significant financial loss or the risk of not completing HDD construction during the 2017 season, negatively impacting the approved construction schedule. The Chair also found that, based on

an evaluation of the RFA #12, the requested limited water use license would not be likely to result in a significant new adverse impact to a resource protected by a Council Standard.[2]

On August 4, 2017, the Department sent notice of the amendment request and availability of the proposed order to all persons on the Council's general mailing list, to the special list established for the facility, to an updated list of property owners supplied by the certificate holder, and to a list of reviewing agencies as defined in OAR 345-001-0010(52). The notice included a request for public comments on the amendment request and proposed order during a concurrent comment period and established a comment deadline of August 17, 2017, in accordance with OAR 345-027-0080(3)(a) and (5). In addition to issuing the notice, the Department posted the public notice, RFA #12 materials, and the proposed order on the Department's website. Because the amendment request and proposed order were issued concurrently, at the time of issuance, the Department had not yet received comments from reviewing agencies or members of the public. Because the limited water use license was submitted to the Oregon Water Resources Department on July 27, 2017, prior to the certificate holder's submittal of RFA #12, the Oregon Water Resources Department provided comments to the Department from the local Watermaster prior to the comment period and are considered in Section III.A.8 of this order.

The Council considered the proposed order during its August 18, 2017 Council meeting. Based upon the recommendations included in the Department's proposed order, the Council issued a temporary order approving the amendment request and temporarily amending the site certificate. The deadline for requesting a contested case on the Council's temporary order extends until 5 p.m. on September 5, 2017, in accordance with OAR 345-027-0080(8). If there are no contested case requests received by the deadline, the Council's temporary order will be adopted as a final order, without further Council review or action.

[2] MSTAMD12Doc2 2017-08-4 Chair Beyeler Approval of Request for Expedited Review. See Attachment B of this temporary order.

II.A. Summary of Comments Received

II.A.1 Comments on RFA #12 and Proposed Order

The Department received comments from the following reviewing agencies:

- Columbia County Department of Land Development Services confirmed that there would be no local permits required for the use of temporary water at a new, but existing water diversion point along the Beaver-Slough.[3]
- Oregon Department of Environmental Quality commented that water withdrawn from Beaver Slough could impact water quality by increasing water temperatures for a water of the state designated on the State of Oregon's 303(d) list as water quality limited for dissolved oxygen on a year-round basis.[4]
- Oregon Department of Fish and Wildlife (ODFW) commented requesting that the Council require the certificate holder to install fish screen or by-pass devices, in accordance with ODFW fish screen criteria; and, that the certificate holder receive written approval from ODFW on the fish screen prior to installation.
- Oregon Water Resources Department provided comments confirming that a limited water use application could be issued and provided recommended conditions of compliance to satisfy comments received from ODEQ and applicable water rights law requirements.[5,6]
- Oregon Public Utilities Commission commented that they did not contest the amendment, nor are they responsible for site or water permits; however, if there are costs associated with the proposed water right, OPUC would review tariffs and rate recovery pursuant to OAR 860-022-0010.[7]

To the extent these comments are related to a Council standard, the Council's evaluation is presented in Section III.A. of this order.

III. REVIEW OF THE REQUESTED AMENDMENT

OAR 345-027-0070(10) establishes the Council's scope of review in making its decision on RFA #12.

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[3] MSTAMD12 Reviewing Agency Comment Columbia County Dugdale 2017-08-07
[4] MSTAMD12 Reviewing Agency Comment ODEQ Johnson 2017-08-14 and 2017-08-17
[5] MSTAMD12 Reviewing Agency Comment ODFW Reif 2017-08-17
[6] MSTAMD12 Reviewing Agency Comment ODWR Sauter 2017-08-16
[7] Comments related to OPUC's authority to review tariffs and rate recovery related to capital projects are not within Council's jurisdiction and are not considered in the temporary order. MSTAMD12 Reviewing Agency Comment OPUC Glosser 2017-08-17.

III.A. Standards Potentially Impacted by Amendment No. 12

III.A.1 General Standard of Review: OAR 345-022-0000

(1) To issue a site certificate for a proposed facility or to amend a site certificate, the Council shall determine that the preponderance of evidence on the record supports the following conclusions:

(a) The facility complies with the requirements of the Oregon Energy Facility Siting statutes, ORS 469.300 to ORS 469.570 and 469.590 to 469.619, and the standards adopted by the Council pursuant to ORS 469.501 or the overall public benefits of the facility outweigh the damage to the resources protected by the standards the facility does not meet as described in section (2);

(b) Except as provided in OAR 345-022-0030 for land use compliance and except for those statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council, the facility complies with all other Oregon statutes and administrative rules identified in the project order, as amended, as applicable to the issuance of a site certificate for the proposed facility. If the Council finds that applicable Oregon statutes and rules, other than those involving federally delegated programs, would impose conflicting requirements, the Council shall resolve the conflict consistent with the public interest. In resolving the conflict, the Council cannot waive any applicable state statute.

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(4) In making determinations regarding compliance with statutes, rules and ordinances normally administered by other agencies or compliance with requirement of the Council statutes if other agencies have special expertise, the Department of Energy shall consult such other agencies during the notice of intent, site certificate application and site certificate amendment processes. Nothing in these rules is intended to interfere with the state's implementation of programs delegated to it by the federal government.

Findings of Fact

OAR 345-022-0000 provides the Council's General Standard of Review and requires the Council to find that a preponderance of evidence on the record supports the conclusion that the amended facility complies with the requirements of the Oregon Energy Facility Siting statutes and the siting standards adopted by the Council and that the amended facility complies with all

other Oregon Statues and administrative rules identified in the project order, as amended, and as applicable to the issuance of a site certificate for a facility.

The requirements of OAR 345-022-0000 are discussed in the sections that follow. The Department requested review by other state agencies and Columbia County of RFA #12 and the proposed order to aid in the evaluation of whether the facility, as amended, would maintain compliance with statutes, rules and ordinances otherwise administered by other agencies.

Based on the following analysis, the Council imposes several conditions in the site certificate to address the new limited water use license. Based upon compliance with the existing and new site certificate conditions, the Council finds that the facility, as amended, satisfies the requirements of OAR 345-022-0000.

Conclusions of Law

Based on the findings of fact and conclusions of law provided in the subsequent sections of this order, and subject to compliance with existing and new conditions, the Council finds that the amended facility satisfies the requirements of OAR 345-022-0000.

III.A.2 Protected Areas: OAR 345-022-0040

(1) Except as provided in sections (2) and (3), the Council shall not issue a site certificate for a proposed facility located in the areas listed below. To issue a site certificate for a proposed facility located outside the areas listed below, the Council must find that, taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impact to the areas listed below. References in this rule to protected areas designated under federal or state statutes or regulations are to the designations in effect as of May 11, 2007:

(a) National parks, including but not limited to Crater Lake National Park and Fort Clatsop National Memorial;

(b) National monuments, including but not limited to John Day Fossil Bed National Monument, Newberry National Volcanic Monument and Oregon Caves National Monument;

(c) Wilderness areas established pursuant to The Wilderness Act, 16 U.S.C. 1131 et seq. and areas recommended for designation as wilderness areas pursuant to 43 U.S.C. 1782;

(d) National and state wildlife refuges, including but not limited to Ankeny, Bandon Marsh, Baskett Slough, Bear Valley, Cape Meares, Cold Springs, Deer Flat, Hart

Mountain, Julia Butler Hansen, Klamath Forest, Lewis and Clark, Lower Klamath, Malheur, McKay Creek, Oregon Islands, Sheldon, Three Arch Rocks, Umatilla, Upper Klamath, and William L. Finley;

(e) National coordination areas, including but not limited to Government Island, Ochoco and Summer Lake;

(f) National and state fish hatcheries, including but not limited to Eagle Creek and Warm Springs;

(g) National recreation and scenic areas, including but not limited to Oregon Dunes National Recreation Area, Hell's Canyon National Recreation Area, and the Oregon Cascades Recreation Area, and Columbia River Gorge National Scenic Area;
(h) State parks and waysides as listed by the Oregon Department of Parks and Recreation and the Willamette River Greenway;

(i) State natural heritage areas listed in the Oregon Register of Natural Heritage Areas pursuant to ORS 273.581;

(j) State estuarine sanctuaries, including but not limited to South Slough Estuarine Sanctuary, OAR Chapter 142;

(k) Scenic waterways designated pursuant to ORS 390.826, wild or scenic rivers designated pursuant to 16 U.S.C. 1271 et seq., and those waterways and rivers listed as potentials for designation;

(l) Experimental areas established by the Rangeland Resources Program, College of Agriculture, Oregon State University: the Prineville site, the Burns (Squaw Butte) site, the Starkey site and the Union site;

(m) Agricultural experimental stations established by the College of Agriculture, Oregon State University, including but not limited to: Coastal Oregon Marine Experiment Station, Astoria Mid-Columbia Agriculture Research and Extension Center, Hood River Agriculture Research and Extension Center, Hermiston Columbia Basin Agriculture Research Center, Pendleton Columbia Basin Agriculture Research Center, Moro North Willamette Research and Extension Center, Aurora East Oregon Agriculture Research Center, Union Malheur Experiment Station, Ontario Eastern Oregon Agriculture Research Center, Burns Eastern Oregon Agriculture Research Center, Squaw Butte Central Oregon Experiment Station, Madras Central Oregon Experiment Station, Powell Butte Central Oregon Experiment Station, Redmond Central Station, Corvallis Coastal Oregon Marine Experiment Station, Newport

Southern Oregon Experiment Station, Medford Klamath Experiment Station, Klamath Falls;

(n) Research forests established by the College of Forestry, Oregon State University, including but not limited to McDonald Forest, Paul M. Dunn Forest, the Blodgett Tract in Columbia County, the Spaulding Tract in the Mary's Peak area and the Marchel Tract;

(o) Bureau of Land Management areas of critical environmental concern, outstanding natural areas and research natural areas;

(p) State wildlife areas and management areas identified in OAR chapter 635, Division 8.
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Findings of Fact

The Protected Areas standard requires the Council to find that, taking into account mitigation, the design, construction and operation of a facility are not likely to result in significant adverse impacts to any protected area as defined by OAR 345-022-0040.

The Department and Council's review of potential impacts to protected areas includes an evaluation of water use and wastewater disposal, amongst other criteria. In the *Final Order on Amendment #11,* Council found that one protected area, the Julia Butler Hanson National Wildlife Refuge, could be affected by the North Mist Expansion Project. That protected area is close to the northern end of the North Mist Expansion Project, the location of the existing diversion point that would be used as the water outtake for the limited water use license. Considering that the diversion point and associated infrastructure already exist, and the quantity of water withdrawn from Beaver Slough would not increase over the total amount previously considered and approved by Council (4.46 million gallons total), and that the water use from the new diversion point would only occur through November 2017, the Council finds that water use associated with RFA #12 would not be likely to result in a significant adverse impact to the Julia Butler Hanson Wildlife Refuge or another other Protected Area within the analysis area.[8]

Based on the same factors, that the diversion point and associated infrastructure already exist, and the quantity of water withdrawn from Beaver Slough would not increase over the total

[8] *Final Order on RFA #11*. Through the Council's approval of RFA #11 in April 2016, the certificate holder received authorization for two limited water use licenses from the Oregon Water Resources Department, one license (LL-1575) authorized 4.46 million gallons of water withdraw from Beaver Slough; and, the second license (LL-1576) authorized withdraw of 2.2 million gallons from Bradbury Slough. Therefore, the total quantity of water previously approved for temporary use through limited water use licenses was 6.66 million gallons.

amount previously considered and approved by Council (4.46 million gallons total from Beaver Slough), and that the water use from the new diversion point would only occur through November 2017, the Council finds that RFA #12 would not be likely to result in a significant adverse impact to Protected Areas within the analysis area including noise, traffic, wastewater, or visual impacts.

Conclusions of Law

Based on the analysis above, the Council finds that the facility, as amended, continues to satisfy the requirements of the Protected Areas standard.

III.A.3 Retirement and Financial Assurance: OAR 345-022-0050

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

(1) The site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility.

(2) The applicant has a reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition.

To satisfy this standard, the Council must find that the site can be restored to a useful, non-hazardous condition following permanent cessation of the facility and that the certificate holder has a reasonable likelihood of obtaining a bond or comparable security, satisfactory to the Council, in an amount adequate to restore the site.
The Council previously found that NW Natural has the ability to obtain a bond or letter of credit sufficient to restore the site to a useful, non-hazardous condition and that the site can be restored to a useful, non-hazardous condition following cessation of construction or operation of the facility. Prior to commencing construction of the North Mist Expansion Project, authorized by Council in the *Final Order on Amendment #11*, NW Natural submitted to the Department a bond for $3.03 million, the amount Council found to be sufficient to restore the site. The certificate holder asserts that the requested limited water use license would not implicate or change the Council's findings in the *Final Order on Amendment #11*.[9] The Council agrees and finds that the previous findings can be relied upon to support the Council's conclusion below.

[9] MSTAMD12Doc1 2017-8-3

Conclusions of Law

Based on the foregoing findings of fact, the Council finds that the facility, as amended, continues to comply with the Council's Retirement and Financial Assurance standard.

III.A.4 Fish and Wildlife Habitat: OAR 345-022-0060

> *To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are consistent with the fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025 in effect as of September 1, 2000.*

Findings of Fact

The Fish and Wildlife Habitat standard requires the Council to find that the design, construction, and operation of a facility are consistent with fish and wildlife habitat mitigation goals as set forth in OAR 635-415-0025.

As described in Section I.E., the new diversion point and associated infrastructure already exist, the quantity of water withdrawn from Beaver Slough would not increase over the amount previously considered and approved by Council (4.46 million gallons total from Beaver Slough), and the water use from the new diversion point would only occur through November 2017. In addition, as described in the *Final Order on Amendment #11*, Beaver Slough is not high-quality fish habitat considering it is primarily used for agriculture purposes and flood control, and there are no listed fish species, including salmon, that are known to live in or use Beaver Slough.

In a comment letter on RFA #12 and the proposed order, Oregon Department of Environmental Quality (DEQ) expressed concern that because Beaver Slough is identified on the State of Oregon's 303(d) list as water quality limit for dissolved oxygen, that water withdrawal could increase water temperature further reducing dissolved oxygen levels in the slough. DEQ's letter indicated that because water withdrawal could increase water temperature, it could have a detrimental effect on threatened salmon using the slough and water quality in general.[10].However, in response to this comment, Oregon Water Resources Department noted that the requested limited water use license would not increase the total quantity of water

[10] Prior to its submittal of a request for amendment of the site certificate to the Department, NW Natural submitted the limited water use license application on July 27, 2017 directly to Oregon Water Resources Department. The Oregon Water Resources Department commenced its review and permitting process at that time. The Council's application and amendment processes are intended to consolidate state and local permitting processes into one process; however, in this instance, two state agency processes were initiated. Oregon DEQ submitted directly to OWRD an identical comment to what DEQ submitted to ODOE on August 14, 2017. MSTAMD12 Reviewing Agency Comment ODEQ Johnson 2017-08-14.

previously authorized in LL-1575 to NW Natural to be withdrawn from Beaver Slough, which would remain unchanged at 4.46 million gallons. The new limited water use license would authorize an existing, but different diversion location in the same water body, and the total authorized withdrawal quantity from Beaver Slough would not increase. Additionally, as described in the Threatened and Endangered Species section below, and as found by Council in the *Final Order on Amendment #11*, Beaver Slough is not habitat for listed fish species and no listed fish species are known to occur in this waterbody.

In a comment letter on RFA #12 and the proposed order, ODFW recommended that the Council impose conditions requiring the installation of fish screens or by-pass devices at the water diversion point under review, and requested that the Council require the certificate holder to obtain written approval from ODFW that the fish screens or by-pass device installed meet ODFW's current, established fish screen criteria. The Council agrees that the conditions requested would minimize any potential impact to aquatic habitat, and are generally consistent with conditions recommended by Oregon Department of Water Resources. The Council's imposed conditions in response to ODFW's comments are presented in Section III.A.8.1 of this order.

The Council previously found in the *Final Order on Amendment #11* that the North Mist Expansion Project satisfies the requirements of the Council's Fish and Wildlife Habitat standard. The Council finds that the request to use an existing, but different water withdraw diversion point through a new limited water use license would not affect the Council's prior findings regarding the ability of the facility to satisfy the requirements of the Fish and Wildlife Habitat standard.

Conclusions of Law

Based on the foregoing findings of fact and conclusions, and subject to compliance with the existing site certificate conditions, the Council finds that the amended facility complies with the Council's Fish and Wildlife Habitat standard.

III.A.5 Threatened and Endangered Species: OAR 345-022-0070

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

(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under ORS 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:

(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or

(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species; and

(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed as threatened or endangered under ORS 496.172(2), the design, construction and operation of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

Findings of Fact

The Threatened and Endangered Species standard requires the Council to find that the design, construction, and operation of the facility is not likely to cause a significant reduction in the likelihood of survival or recovery of a fish, wildlife, or plant species listed as threatened or endangered by ODFW or Oregon Department of Agriculture (ODA). For threatened and endangered plant species, the Council must also find that the facility is consistent with an adopted protection and conservation program from ODA. Threatened and endangered species are those listed under ORS 564.105(2) for plant species and ORS 496.172(2) for fish and wildlife species. For the purposes of this standard, threatened and endangered species are those identified as such by either the Oregon Department of Agriculture or the Oregon Fish and Wildlife Commission.[11]

As described in Section I.E., the new diversion point and associated infrastructure already exist, the quantity of water withdrawn from Beaver Slough would not increase over the amount previously considered and approved by Council (4.46 million gallons total from Beaver Slough), and the water use from the new diversion point would only occur through November 2017. In addition, Beaver Slough is not high-quality fish habitat considering it is primarily used for agriculture purposes and flood control, and records to not show that listed fish species, including salmon, are known to live in or use Beaver Slough.[12]

Based on the certificate holder's representations and analysis, and subject to compliance with the existing conditions, the Council finds that the design, construction, and operation of the facility, as amended, are not likely to cause a significant reduction in the likelihood of survival or recovery of any Threatened or Endangered Species.

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[11] Although the Council's standard does not address federally-listed threatened or endangered species, certificate holders must comply with all applicable federal laws, including laws protecting those species, independent of the site certificate.

[12] MSTAMD12Doc1 2017-8-3 RFA #12 and *Final Order on Mist Underground Natural Gas Storage Facility Amendment #11*

Conclusions of Law

Based on the foregoing findings of fact and conclusions, and subject to compliance with the existing site certificate conditions, the Council finds that the facility, as amended, would comply with the Council's Threatened and Endangered Species standard.

III.A.6 Recreation: OAR 345-022-0100

> *(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction and operation of a facility, taking into account mitigation, are not likely to result in a significant adverse impact to important recreational opportunities in the analysis area as described in the project order. The Council shall consider the following factors in judging the importance of a recreational opportunity:*
>
> > *(a) Any special designation or management of the location;*
> > *(b) The degree of demand;*
> > *(c) Outstanding or unusual qualities;*
> > *(d) Availability or rareness;*
> > *(e) Irreplaceability or irretrievability of the opportunity.*

Findings of Fact

The Recreation standard requires the Council to find that the design, construction and operation of a facility are not likely to result in significant adverse impacts to "important" recreational opportunities. Therefore, the Council's Recreation standard applies to only those recreation areas that the Council finds "important" using the factors listed in the sub-paragraphs of section (1) of the standard.

In the *Final Order on Amendment #11*, the Council found that there are two important recreation opportunities that could be affected by the North Mist Expansion Project, the Julia Butler Hanson National Wildlife Refuge, and the Lower Columbia River Water Trail. Both recreational opportunities are close to the northern end of the North Mist Expansion Project, the location of the existing diversion point to be used as the water outtake for the new limited water use license. Considering that the diversion point and associated infrastructure already exist, the quantity of water withdrawn from Beaver Slough would not increase over the total amount previously considered and approved by Council (4.46 million gallons total from Beaver Slough), and that the water use from the new diversion point would only occur through November 2017, the Council finds that RFA #12 would not be likely to result in a significant adverse impact to either of the important recreational opportunities previously identified.

Based on the certificate holder's analysis and representations, and compliance with existing site certificate conditions, the Council finds that the facility, as amended, would not be likely to result in significant adverse impacts to important recreational resources in the analysis area.

Conclusions of Law

Based on the foregoing, the Council finds that the design, construction and operation of the facility, as amended, would not be likely to result in a significant adverse impact to any important recreational opportunities in the analysis area and therefore the facility complies with the Council's Recreation standard.

III.A.7 Public Services: OAR 345-022-0110

> *(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to the ability of public and private providers within the analysis area described in the project order to provide: sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.*
>
> *(2) The Council may issue a site certificate for a facility that would produce power from wind, solar or geothermal energy without making the findings described in section (1). However, the Council may apply the requirements of section (1) to impose conditions on a site certificate issued for such a facility.*
>
> ** * **

Findings of Fact

The Council's Public Services standard requires the Council to identify likely significant adverse impacts on the ability of public and private service providers to supply sewer and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, health care, and schools.

Because NW Natural submitted the limited water use license application on July 27, 2017 directly to Oregon Water Resources Department, prior to its submittal of a request for amendment of the site certificate to the Department, the Oregon Water Resources Department commenced its review and permitting process. The Council's application and amendment processes are intended to consolidate state and local permitting processes into one process; however, in this instance, two state agency processes were initiated. Because Oregon Water Resources Department is the primary reviewing agency with the expertise of the applicable regulatory requirements for the amendment request, the Council acknowledges the comments

provided by the local Watermaster and Oregon Water Resources Department staff during its separate review of the limited water use license application, which initiated on July 27, 2017.

During its review of the limited water use license application, the local watermaster stated that water supplies exist to support the requested limited use license, and that the limited water use license be approved subject to standard conditions. Additionally, as described in this order, Oregon Water Resources Department recommended several conditions of approval be added to the site certificate to limit the total quantity of water withdrawn from Beaver Slough to 4.46 million gallons, consistent with the quantity previously approved by Council. This condition and recommended findings are included in Section III.A.8.1 of this order.

Considering that the diversion point and associated infrastructure already exist, the quantity of water withdrawn from Beaver Slough would not increase over the amount previously considered and approved by Council, and that the water use from the new diversion point would only last until November 2017, and the comments from the local Watermaster and Oregon Department of Water Resources, the Council finds that RFA #12 would not be likely to result in significant adverse impacts to the ability of public or private providers of services to provide services.

Based upon the foregoing, the Council finds that the facility, as amended, would not be likely to result in significant adverse impacts to the ability of public and private providers to provide public services.

Conclusions of Law

Based on the foregoing findings, and subject to compliance with the existing site certificate conditions, the Council finds that the facility, as amended, complies with the Council's Public Services standard.

III.A.8 Other Applicable Regulatory Requirements Under Council Jurisdiction

Under ORS 469.503(3) and under the Council's General Standard of Review (OAR 345-022-0000), the Council must determine whether a facility complies with "all other Oregon statutes and administrative rules…, as applicable to the issuance of a site certificate for the proposed facility." This section addresses the applicable Oregon statutes and administrative rules that are not otherwise addressed in Council standards, which in this case only include water rights and the limited water use license.

III.A.8.1 Water Rights

Under ORS Chapters 537 and 540 and OAR Chapter 690, the Oregon Water Resources Department administers water rights for appropriation and use of the water resources of the

state. Under OAR 345-022-0000(1), the Council must determine whether the facility would comply with these statutes and administrative rules.

Findings of Fact

RFA #12 sought approval for a new limited water use license that would authorize withdraw water from an existing diversion point located on property owned by the Port of St. Helens, leased to PGE, and sub-leased to Seeley Mint Farm, to the north and east on Beaver Slough, close to PGE's Beaver Generating Station (see "Seeley Mint Farm Diversion Point," Figure 2 in Section I.C). The water would be used during construction of the previously-approved North Mist Transmission Pipeline for HDD during underground pipeline installation on the Seeley mint farm property. The limited water use license would apply from August 2017 through the end of November 2017. Total water withdrawn from Beaver Slough would not exceed the quantity Council previously authorized during its review of RFA #11 in 2016, 4.46 million gallons.

As previously described, because NW Natural submitted the limited water use license application on July 27, 2017 directly to Oregon Water Resources Department, prior to its submittal of a request for amendment of the site certificate to the Department, the Oregon Water Resources Department commenced its review and permitting process. The Council's application and amendment processes are intended to consolidate state and local permitting processes into one process; however, in this instance, two state agency processes were initiated. Because Oregon Water Resources Department is the primary reviewing agency with the expertise of the applicable regulatory requirements for the amendment request, the Council acknowledges the comments provided by the local Watermaster and Oregon Water Resources Department staff during its separate review of the limited water use license application, which initiated on July 27, 2017.

As provided in RFA #12, the local Watermaster expressed a belief that there is sufficient water available for the requested limited use license and recommended that the license be subject to standard conditions.[13] During the RFA #12 and proposed order comment period, the Oregon Water Resources Department provided recommended findings and conditions for inclusion in the amended site certificate. The recommended findings state that Oregon Water Resources Department confirmed water availability for the requested use; the proposed water source has not been withdrawn from further appropriation; and, that because the quantity of water would not increase over the amount previously approved under LL-1575 (4.46 million gallons total from Beaver Slough), no additional impacts would result to the water source. The Council adopts these findings and imposes the conditions below.

[13] MSTAMD12Doc1 2017-8-3 RFA #12, Enclosure B

Additionally, the Council imposes administrative changes to the conditions included in the eleventh amended site certificate related to the previously approved limited water use licenses (LL-1575 and LL-1576). The administrative changes are presented in the order, in underline/strike-through, and are intended to align the information provided by the certificate holder in RFA #11 and final, standard conditions included in the limited water use licenses. None of the administrative changes are substantive in nature nor represent information that differs from the information provided on the record for RFA #11. The conditions imposed for the two previously approved (LL-1575 and LL-15766), and the new limited water use license approved through RFA #12 (LL-1709) are presented below (changes from the April 2016 amended site certificate conditions to the August 2017 temporary order are presented in underline/strikethrough):

Amendment 12 Limited Water Use License Conditions:[14]

(1) The use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate and shall be subordinate to all other authorized uses that rely upon the same source. (LL-1575 and LL-1576 Condition 5, LL-1709 Condition 6)

(2) The certificate holder shall give notice to the Department and the Watermaster in the district where use is to occur ~~at least~~ not less than 15 days or more than 60 days in advance of using water under the limited water use licenses. The notice shall include the location of the diversion, the quantity of water to be diverted and the intended use and place of use. (LL-1575 and LL-1576 Condition 2, LL-1709 Condition 3)

(3) Before water use may begin under LL-1575, LL-1576 and LL-1709, the certificate holder shall install a totalizing flow meter at each point of diversion. The totalizing flow meter must be installed and maintained in good working order. In addition, the certificate holder shall maintain a record of all water use, including the ~~period of use~~ total number of hours of pumping, the total quantity pumped, and the categories of beneficial use to which the water is applied. During the period of the license, the record of use shall be submitted to the Department and Oregon Department of Water Resources within 90-

[14] In the proposed order, Recommended Amendment 12 Limited Water Use License Condition stated, "The use of water under this license [LL-1709], or, in combination with license LL-1575, shall not exceed 2,000 gallons per minute, up to 300,000 gallons of the total 4.46 gallons allowed under LL-1575." Because the Oregon Water Resources Department had not yet completed their review of the application, additional conditions were provided and are included in the above "Amendment 12 Limited Water Use License Conditions."

days of completion of use from the point of diversion, and shall be supplied to the Watermaster on request. (LL-1575 and LL-1576 Condition 3, LL-1709 Condition 4)

(4) The period rate and volume of use for LL-1575 shall be from June 1, 2017, through November 30, 2018, for the use of 2,000 gallons per minute, up to 4.46 million gallons total from Beaver Slough, for the purpose of hydrostatic testing of new pipeline, and drilling fluid for horizontal direction drilling. ~~Both licenses are effective for the requested use between June 1, 2017 and November 30, 2018. Upon completion of the Project, the certificate holder shall submit the record of use to the OWRD and the department.~~ (LL-1575 Condition 1)

(5) The period rate and volume of use for LL-1709 shall be from August 18, 2017, through November 30, 2017, for the use of 2,000 gallons per minute, up to 300,000 gallons total from Beaver Slough located at the NE ¼, NE ¼, Section 21, Township 8 North, Range 4 West, W.M., for horizontal direction drilling and dust abatement. (LL-1709 Condition 1)

(6) LL-1709 is not intended to authorize additional water withdrawal beyond that already allowed under LL-1575, and therefore contributes no additional impact to the water source. The use of water under LL-1709, or, in combination with license LL-1575, shall not exceed 2,000 gallons per minute, or up to 300,000 gallons of the total 4.46 million gallons allowed under LL-1575. (LL-1709 Condition 2)

(7) The period rate and volume of use for LL-1576 shall be from June 1, 2017, through November 30, 2018, for the use of 2,000 gallons per minute, up to 2.2 million gallons total from Bradbury Slough, for the purpose of hydrostatic testing of new pipeline, and drilling fluid for horizontal direction drilling. (LL-1576 Condition 1)

(8) For LL-1575 and LL-1576, the certificate holder shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. Fish screens shall be installed consistent with the fish screening criteria provided as Attachment D to the site certificate. (LL-1575 and LL-1576 Condition 6)

(9) For LL-1709, the certificate holder shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. Fish screens shall be installed consistent with the fish screening criteria provided as Attachment D to the site certificate. (LL-1709 Condition 7).

(a) The certificate holder shall consult with ODFW Fish Screens and Passage Program Manager and shall provide the Department evidence of consultation prior to use

under LL-1709 to demonstrate that the fish screen installed at the diversion point meets ODFW's applicable criteria.

(10) The Council may, at the request of Oregon Department of Water Resources Director, revoke the right to use water for any reason described in ORS 537.143(2), and OAR 690-340-0030(6). Such revocation may be prompted by field regulatory activities or by any other information. (LL-1575 and LL-1576 Condition 4, LL-1709 Condition 5)

(11) Use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate, and shall be subordinate to all other authorized uses that rely upon the same source. (LL-1575 and LL-1576 Condition 5, LL-1709 Condition 6)

(12) A copy of the licenses shall be kept at the place of use, and be available for inspection by the Department, Watermaster or other state authority. (LL-1575 and LL-1576 Condition 8, LL-1709 Condition 9)

Conclusions of Law

Based on the foregoing findings and the evidence in the record, and subject to compliance with the amended and new conditions listed above, the Council finds that the facility, as amended, complies with the requirements to receive a limited water use license from Oregon Water Resources Department, and that the Oregon Water Resources Department shall issue one limited water use license as requested by NW Natural in RFA #12, limited water use license application number LL-1709.

III.B Standards Not Likely to Be Impacted by Amendment #12

RFA #12, as described throughout this order, solely requests authorization for a new limited water use license. The new license would not increase the total quantity of water used by the North Mist Expansion Project from Beaver Slough, 4.46 million gallons. The water would be withdrawn from existing diversion infrastructure and the duration of water use would be limited from August 2017 to the end of November 2017.

Council previously found in the *Final Order on* Amendment #11 that NW Natural and the components of the North Mist Expansion Project comply with all applicable Council standards, and imposed a number of conditions associated with that project. All conditions of the site certificate continue to apply.

For the above-described reasons, the Council concludes that the following standards are not likely to be impacted by RFA #12.

Table 1: Summary of Council's Evaluation of Council Standards Not Likely Impacted by Amendment #12

Rule Citation	Standard	Department's Evaluation
345-022-0010	Organizational Expertise	Amendment would not result in change to organizational structure or require new expertise or experience. Amendment would not impact certificate holder's ability to satisfy requirements
345-022-0020	Structural Standard	New site characterization studies would not be required to address RFA #12. Amendment would not impact certificate holder's ability to satisfy requirements
345-022-0022	Soil Protection	Potential impacts to soils would be the same. Amendment would not impact certificate holder's ability to satisfy requirements
345-022-0030	Land Use	Certificate holder confirmed that there have been no changes in the local comprehensive plan, zoning requirements, or any applicable land use standards or criteria. Amendment would not impact certificate holder's ability to satisfy requirements.[15]
345-022-0080	Scenic Resources	Amendment would use existing water withdrawal diversion point and therefore would not result in any new visual or ground-disturbing impacts. Amendment would not impact certificate holder's ability to satisfy requirements.
345-022-0090	Historic, Cultural, and Archaeological Resources	
345-022-0120	Waste Minimization	Amendment would not result in new or changes to existing sources of waste during construction or operation. Amendment would not impact certificate holder's ability to satisfy requirements.
345-023-0005	Facility Need	Requirements of these standards do not apply to the components included in the amendment request. Amendment would not impact certificate holder's ability to satisfy requirements.
345-024-0030	Public Health and Safety Standards for Surface Facilities Related to Underground Gas Storage Reservoirs	

Sections III.B.1 through III.B.10 present the language of these standards not likely to be impacted by RFA #12 from OAR 345 Chapter 22, for reference purposes only.

III.B.1 Organizational Expertise: OAR 345-022-0010

(1) To issue a site certificate, the Council must find that the applicant has the organizational expertise to construct, operate and retire the proposed facility in compliance with Council standards and conditions of the site certificate. To conclude that the applicant has this expertise, the Council must find that the applicant has demonstrated the ability to design, construct and operate the proposed facility in compliance with site certificate conditions and in a manner that protects public health and safety and has demonstrated the ability to restore the site to a useful, non-hazardous condition. The Council may consider the applicant's experience, the applicant's access to technical expertise and the applicant's past performance in constructing, operating and retiring other facilities, including, but not limited to, the number and severity of regulatory citations issued to the applicant.

(2) The Council may base its findings under section (1) on a rebuttable presumption that an applicant has organizational, managerial and technical expertise, if the applicant has an ISO 9000 or ISO 14000 certified program and proposes to design, construct and operate the facility according to that program.

(3) If the applicant does not itself obtain a state or local government permit or approval for which the Council would ordinarily determine compliance but instead relies on a permit or approval issued to a third party, the Council, to issue a site certificate, must find that the third party has, or has a reasonable likelihood of obtaining, the necessary permit or approval, and that the applicant has, or has a reasonable likelihood of entering into, a contractual or other arrangement with the third party for access to the resource or service secured by that permit or approval.

(4) If the applicant relies on a permit or approval issued to a third party and the third party does not have the necessary permit or approval at the time the Council issues the site certificate, the Council may issue the site certificate subject to the condition that the certificate holder shall not commence construction or operation as appropriate until the third party has obtained the necessary permit or approval and the applicant has a contract or other arrangement for access to the resource or service secured by that permit or approval.

[15] Comments received from Columbia County confirmed that there were no local permits required for the new limited water use license. This comment does not raise an issue related to the certificate holder's analysis or Department's evaluation as presented in the proposed order; therefore, this comment is not considered further in the temporary order. MSTAMD12 Reviewing Agency Comment Columbia County Dugdale 2017-08-07

III.B.2 Structural Standard: OAR 345-022-0020

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that:

(a) The applicant, through appropriate site-specific study, has adequately characterized the site as to the Maximum Considered Earthquake Ground Motion as shown for the site in the 2009 International Building Code and maximum probable ground motion, taking into account ground failure and amplification for the site specific soil profile under the maximum credible and maximum probable seismic events; and

(b) The applicant can design, engineer, and construct the facility to avoid dangers to human safety presented by seismic hazards affecting the site that are expected to result from maximum probable ground motion events. As used in this rule "seismic hazard" includes ground shaking, ground failure, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement, and subsidence;

(c) The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soils hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility; and

(d) The applicant can design, engineer and construct the facility to avoid dangers to human safety presented by the hazards identified in subsection (c).

***

III.B.3 Soil Protection: OAR 345-022-0022

To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in a significant adverse impact to soils including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.

III.B.4 Land Use: OAR 345-022-0030

(1) To issue a site certificate, the Council must find that the proposed facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission.

(2) The Council shall find that a proposed facility complies with section (1) if:

(a) The applicant elects to obtain local land use approvals under ORS 469.504(1)(a) and the Council finds that the facility has received local land use approval under the acknowledged comprehensive plan and land use regulations of the affected local government; or

(b) The applicant elects to obtain a Council determination under ORS 469.504(1)(b) and the Council determines that:

(A) The proposed facility complies with applicable substantive criteria as described in section (3) and the facility complies with any Land Conservation and Development Commission administrative rules and goals and any land use statutes directly applicable to the facility under ORS 197.646(3);

(B) For a proposed facility that does not comply with one or more of the applicable substantive criteria as described in section (3), the facility otherwise complies with the statewide planning goals or an exception to any applicable statewide planning goal is justified under section (4); or

(C) For a proposed facility that the Council decides, under sections (3) or (6), to evaluate against the statewide planning goals, the proposed facility complies with the applicable statewide planning goals or that an exception to any applicable statewide planning goal is justified under section (4).
******

<u>III.B.5 Scenic Resources: OAR 345-022-0080</u>

(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic resources and values identified as significant or important in local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area described in the project order.

<u>III.B.6 Historic, Cultural, and Archaeological Resources: OAR 345-022-0090</u>

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to:

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

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

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

** * **

<u>III.B.7 Waste Minimization: OAR 345-022-0120</u>

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that, to the extent reasonably practicable:

(a) The applicant's solid waste and wastewater plans are likely to minimize generation of solid waste and wastewater in the construction and operation of the facility, and when solid waste or wastewater is generated, to result in recycling and reuse of such wastes;

(b) The applicant's plans to manage the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility are likely to result in minimal adverse impact on surrounding and adjacent areas.

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<u>III.B.8 Need for a Facility: 345-023-0005</u>

This division applies to nongenerating facilities as defined in ORS 469.503(2)(e), except nongenerating facilities that are related or supporting facilities. To issue a site certificate for a facility described in sections (1) through (3), the Council must find that the applicant has demonstrated the need for the facility. The Council may adopt need standards for other nongenerating facilities. This division describes the methods the applicant shall use to demonstrate need. In accordance with ORS 469.501(1)(L), the Council has no standard requiring a showing of need or cost-effectiveness for generating facilities. The applicant shall demonstrate need:

(1) For electric transmission lines under the least-cost plan rule, OAR 345-023-0020(1), or the system reliability rule for transmission lines, OAR 345-023-0030, or by demonstrating that the transmission line is proposed to be located within a "National Interest Electric Transmission Corridor" designated by the U.S. Department of Energy under Section 216 of the Federal Power Act;

(2) For natural gas pipelines under the least-cost plan rule, OAR 345-023-0020(1), or the economically reasonable rule for natural gas pipelines, OAR 345-023-0040;

(3) For storage facilities for liquefied natural gas with storage capacity of three million gallons or greater under the least-cost plan rule, OAR 345-023-0020(1), or the economically reasonable rule for liquefied natural gas storage facilities, OAR 345-023-0040.

III.B.9 Public Health and Safety Standards for Surface Facilities Related to Underground Gas Storage Reservoirs: OAR 345-024-0030

To issue a site certificate for a proposed surface facility related to an underground gas storage reservoir, the Council must make the following findings:

(1) The proposed facility is located at distances in accordance with the schedule below from any existing permanent habitable dwelling:

(a) Major facilities, such as compressor stations, stripping plants and main line dehydration stations – 700 feet.

(b) Minor facilities, such as offices, warehouses, equipment shops and odorant storage and injection equipment – 50 feet.

(c) Compressors rated less than 1,000 horsepower – 350 feet.

(d) Roads and road maintenance equipment housing – 50 feet.

(2) The applicant has developed a program using technology that is both practicable and reliable to monitor the facility to ensure the public health and safety

III.B.10 Other Regulatory Requirements Under Council Jurisdiction

Under ORS 469.503(3) and under the Council's General Standard of Review (OAR 345-022-0000), the Council must determine whether a proposed facility complies with "all other Oregon statutes and administrative rules…, as applicable to the issuance of a site certificate for the proposed facility." As noted above, the only other applicable statutes, aside from Council standards, is the OWRD regulations concerning limited water use licenses. Compliance with limited water use licenses is discussed elsewhere in this order. Council also maintains jurisdiction over other applicable state statutes, including DEQ noise control regulations (OAR 345-035-0035) and DSL removal-fill laws related to wetlands and waters of the state. DEQ noise control regulations exempt construction noise, and Amendment #12 does not require a removal-fill permit. Therefore, the Department recommends that the Council conclude that Amendment #12 would not be likely to affect the facility's compliance with either of these regulations.

IV. COUNCIL CONCLUSIONS AND ORDER

The certificate holder submitted a request to amend the site certificate for the Mist Underground Natural Gas Storage Facility in order to use a new limited water use license during a short period of construction of the North Mist Expansion Project, which was authorized by Council in *Final Order on Amendment #11* in April 2016. The Council finds that, subject to compliance with the existing and new conditions discussed in this temporary order, that a preponderance of evidence on the record supports the following conclusions:

1. The Twelfth Amended Site Certificate for the Mist Underground Natural Gas Storage Facility complies with the requirements of the Oregon Energy Facility Siting Statutes, ORS 469.300 to 469.520.

2. The Twelfth Amended Site Certificate for the Mist Underground Natural Gas Storage complies with the standards adopted by the Council pursuant to ORS 469.501.

3. The Twelfth Amended Site Certificate for the Mist Underground Natural Gas Storage complies with all other Oregon statutes and administrative rules applicable to the amendment of the certificate that are within the Council's jurisdiction.

Based on the findings of fact, reasoning, existing and new conditions and conclusions of law in this temporary order, the Council concludes that the certificate holder has satisfied the requirements for issuance of the Twelfth Amended Site Certificate for the Mist Underground Natural Gas Storage, subject to compliance with existing site certificate conditions, and the recommended conditions set forth in this proposed order.

The Council issues a temporary order temporarily amending the site certificate, pursuant to OAR 345-027-0080(6). Before implementing any change approved by this temporary order, the certificate holder must submit an authorized acknowledgement that the certificate holder accepts all terms and conditions of the temporary order.[16]

If the Department does not receive a written request for a contested case within 15-days of the date this temporary order is issued by the Council (by September 5, 2017, at 5 p.m.), the Council's temporary order will be adopted as the final order; the Council Chair is authorized to execute an amended site certificate and final order without further Council review or action.[17]

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[16] OAR 345-027-0080(7)
[17] OAR 345-027-0080(10)

Issued this 18th day of August, 2017

The OREGON DEPARTMENT OF ENERGY

By: _____
Barry Beyeler, Chair
Oregon Energy Facility Siting Council

Attachments:
Attachment A: Proposed Amended Site Certificate (To be Finalized and Executed Upon Council Issuance of Final Order)
Attachment B: Council Chair Approval of Expedited Review

Notice of the Right to Request Contested Case

Any person may request that the Council hold a contested case proceeding on a temporary order issued by Council pursuant to OAR 345-027-0080(8). To request a contested case proceeding, you must submit a written request to the Oregon Department of Energy that is received by the Department within 15 days after the date that the Council issues a temporary order. If you do not submit a request for a contested case proceeding within the 15-day time period, you lose your right to appeal.

Attachment A: Proposed Amended Site Certificate

CONSOLIDATED, RESTATED, AND AMENDED
UNDERGROUND NATURAL GAS STORAGE FACILITY

PROPOSED AMENDED SITE CERTIFICATION AGREEMENT

for the

MIST SITE

between

The State of Oregon

acting by and through its

ENERGY FACILITY SITING COUNCIL

and

NORTHWEST NATURAL GAS COMPANY

~~APRIL~~ DATE~~21~~XX, ~~2016~~2017

This Certification Agreement is made and entered into in the manner provided by ORS 469.300 through ORS 469.570 and ORS 469.992, by and between the State of Oregon (State), acting by and through its Energy Facility Siting Council (EFSC) and Oregon Natural Gas Development Corporation (ONG), a wholly owned subsidiary of Northwest Natural Gas Company (NWN). Any reference herein to ONG shall also include NWN.

I. SITE CERTIFICATION

A. This agreement certifies that, to the extent authorized by state law and those warranties and conditions set forth herein, the State approves and authorizes the construction and operation of an underground storage facility for natural gas and related or supporting facilities at the Mist Site, in the manner described in NWN's site certificate application, this agreement, and the record of the administrative hearings held pursuant to ORS 469.300 through ORS 469.570, including supporting testimony filed by ONG or NWN with EFSC. This approval by the State binds the State and all counties, cities and political subdivisions in the State as to the approval of the site and the construction and operation of the underground storage reservoir and related or supporting facilities, subject only to the conditions of this agreement. However, each agency and county that

issues a permit, license or certificate shall continue to exercise enforcement authority over such permit, license or certificate.

B. This certificate requires NWN to comply with applicable state laws or EFSC rules as they exist on the date it is executed by EFSC, and with stricter state laws or EFSC rules adopted subsequent thereto if compliance with such stricter state laws or EFSC rules is necessary to avoid a clear danger to the public health and safety.

C. The Site Certificate has been amended 12~~1~~ times, as follows:

1. Amendment 1, approved October 24, 1987, amended the site map and amended certain conditions regarding monitoring for safety and vibration.

2. Amendment 2, approved August 2, 1988, amended the site map to allow the addition of a monitoring well.

3. Amendment 3, approved September 21, 1990, amended the site map to replace two poorly functioning injection/withdrawal wells and add two new wells to increase capacity during the "heating season."

4. Amendment 4, approved July 21, 1997, enlarged the site boundary and authorized NWN to develop related and supporting surface facilities associated with new underground storage reservoirs in the Calvin Creek Storage Area, and upgrade related and supporting surface facilities at NWN's Miller Station. The amendment also authorized NWN to develop and operate new pipelines connecting the storage facilities at Calvin Creek to Miller Station. It authorized the replacement of two reciprocating compressors with one turbine driven compressor with rated horse power of 5,035 BHP at Miller Station, subject to an operating limitation to 6,650 total horsepower.1 It added new conditions regarding the development of new related and supporting facilities associated with the Calvin Creek Storage area and Miller Station improvements. This amendment increased the total throughput of the facility to 145 million cubic feet per day (MMcfd).

   The Site Certificate to Amendment 4 covered the Miller Station improvements and the pipelines and other surface facilities. The underground storage reservoirs were under the Department of Geology and Mineral Industries (DOGAMI) jurisdiction.[2]

[1] The Council imposed the operating limitation in response to a request for a contested case by United Pipefitters Local 290. See Section III.A, Final Order Approving Amendment 4.
[2] State law grants DOGAMI broad authority "to regulate the underground storage of natural gas and the drilling and operation of any wells required therefor." ORS 520.095(16). DOGAMI has exercised this authority through the adoption of comprehensive rules governing underground storage facilities at OAR 632 Division 10.

5. Amendment 5, approved March 13, 1998, replaced the Site Certificate amendment process set forth in section VII of the Site Certificate with the process set forth in Council rules at OAR 345, Division 7.

6. Amendment 6, approved March 30, 1999, authorized NWN to develop related and supporting facilities associated with new underground storage reservoirs in the Calvin Creek storage area. The amendment also removed operating restrictions at the Miller compression station (added in Amendment 4) and added new Site Certificate conditions associated with further development of the Calvin Creek storage area.

7. Amendment 7, approved November 17, 2000, authorized NWN to increase the allowed throughput at the Mist storage facility from 190 million cubic feet per day ("MMcfd") to 245 MMcfd.

8. Amendment 8, approved October 26, 2001, authorized NWN to increase the allowed throughput from 245 MMcfd to 317 MMcfd and to install a new 7324 BHP turbine driven compressor and a new injection/monitoring well, served by existing pipelines. The compressor authorized by Amendment 8 is subject to EFSC's carbon dioxide standards at OAR 345 Division 24.

9. Amendment 9, approved December 5, 2003, authorized NWN to increase the allowed throughput from 317 MMcfd to 515 MMcfd. It authorized the construction of improvements at Miller Station, including the installation of new dehydration facilities and gas quality and monitoring equipment. It also authorized NWN to develop related and supporting facilities associated with new underground storage reservoirs in the Calvin Creek storage area. The amendment also allowed NWN to terminate the vibration monitoring program created in Amendment 1.

10. The 1981 site certificate and first nine amendments were stand-alone documents. Amendment 10, approved May 30, 2008, consolidated these documents into a single unified site certificate. Amendment 10 made no substantive changes to the facility or the site certificate.

11. Amendment 11, approved April 21, 2016, authorized NWN to expand the site boundary to include the Adams storage reservoir, as well as the Newton,

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When EFSC approved the Site Certificate for the Mist Site in 1981, its jurisdiction included the surface and underground components of the facility. In 1993, the siting law was amended to included within the Council's jurisdiction only the "surface facility related to an underground gas storage reservoir that, at design injection or withdrawal rates, will receive or deliver more than 50 million cubic feet of natural or synthetic gas per day, and require more than 4,000 horsepower of natural gas compression to operate ***." ORS 469.300(11)(a)(I). Underground storage reservoirs, injection, withdrawal, and monitoring wells, and individual wellhead equipment remain under DOGAMI's pervasive authority over the wells and other subsurface components. ORS 469.300(11)(a)(I)(i)-(ii).

Medicine, Crater, and Stegosaur future storage areas. The amendment authorized NWN to develop only the Adams reservoir as a new underground storage area; to construct and operate a new compressor station, the North Mist Compressor Station (NMCS); and, to construct and operate an approximately 12-mile natural gas transmission pipeline, the North Mist Transmission Pipeline (NMTP), between the NMCS and Portland General Electric's Port Westward Industrial Park (PWIP). The amendment authorized NWN to increase the allowable throughput from 515 MMcfd to 635 MMcfd. New conditions were added to ensure compliance with EFSC requirements.

12. Amendment 12, approved DATE, authorized a new limited water use license for water withdrawn from a diversion point in the Beaver Slough (referred to as the Seeley Mint Farm Diversion Point, see Figure 2 in Final Order on Amendment 12) during construction of the North Mist Expansion Project from August through November 2017.

II. SITE DESCRIPTION OF THE UNDERGROUND STORAGE RESERVOIR AND RELATED OR SUPPORTING FACILITIES

The underground storage reservoir and related or supporting facilities to be constructed and operated consist of:[3]

A. **Original Site**: Two naturally existing underground gas reservoirs (the Flora and Bruer pools) in portions of 3 sections of land all in Township 6 North, Range 5 West of the Willamette Meridian in Columbia County, Oregon, containing 940 acres, more or less from the surface of the earth to the base of the Clark and Wilson Sands and the stratigraphic equivalent thereof, which in the case of the Bruer pool was identified at a measured depth of 3,095 feet in the REC CC#1 RD 1 well and in the case of the Flora pool was identified at measured depth of 2,760 feet in REC CC#33-3 well and are entirely within project boundaries shown in Appendix 1 attached hereto and by reference incorporated herein; and

B. **Calvin Creek**: Naturally existing underground gas reservoirs located in the Calvin Creek area, which is located on the south side of the Nehalem River approximately 2.5 miles south of Miller Station, as shown in Appendix 2. The Calvin Creek storage area is connected to the original facility by two 16-inch pipelines which cross under the Nehalem River in a corridor 200 feet wide and terminate at the Busch Valve Station, as shown in Appendix 2. The 6, 8, and 12-inch pipelines begin at the Busch Valve Station and terminate at the well sites.

[3] NWN has adopted nomenclature for the phases of its gas storage operation at Mist. NWN refers to facilities permitted under the original 1981 permit as "phase 1." NWN refers to the development of storage pools in the Calvin Creek area permitted in 1997 under Amendment 4 as "phase 2." NWN refers to development permitted in amendment 6, coupled with the pipeline expansion authorized in amendment 2 to the South Mist Feeder Pipeline Site Certificate, as "phase 3."

The 6, 8, and 12-inch pipelines are each located within a 200 foot wide corridor that has been characterized in orders approving Amendments 4-9 or changes to the facility that received Department concurrence under OAR 345-027-0050(5).

C. **Miller Station**: The Miller Compression Station, shown in Appendix 1, is located contiguous to the Bruer Flora storage area. Miller Station contains the natural gas fired compressors, a staffed operations and maintenance building, and other ancillary process equipment. Emissions from the compressors are permitted under an air contaminant discharge permit (ACDP) issued by the Department of Environmental Quality. Miller Station contains the following compressors:

1. Two 500 HP Caterpillar reciprocating compressors removed pursuant to Amendment 4.

2. Two 1,350 HP Superior reciprocating compressors not subject to EFSC CO_2 standards.

3. One 5,035 BHP Allison KC-5 turbine driven compressor installed in 1997 pursuant to Amendment 4 and not subject to EFSC CO_2 standards.

4. One 7,324 BHP Allison KC-7 turbine driven compressor installed in 2001 pursuant to Amendment 8 and subject to EFSC CO_2 standards.

D. **North Mist Expansion Area**: The North Mist Expansion Area, shown in Appendix 3, includes the Adams storage area and the North Mist Transmission Pipeline corridor, as well as the Newton, Medicine, Crater, and Stegosaur future storage areas. The North Mist Transmission Pipeline corridor traverses a north, northeast track from the North Mist Compressor Station to the PWIP.

E. **North Mist Compressor Station:** The North Mist Compressor Station, shown in Appendix 3, is located within the North Mist Expansion Area. The North Mist Compressor Station serves only the Adams reservoir, having the capability not only to compress the gas for injection into and withdrawal from the reservoir, but also to measure and control the gas flow and dehydrate the gas as needed during withdrawal. The North Mist Compressor Station has a total installed compression of approximately 3,600 BHP provided by two gas-fueled compressors.

III. WARRANTIES

In consideration of the execution of this Certification Agreement by the EFSC and pursuant to ORS 469.400(4) and ORS 469.470(3) the following warranties are made:

A. Financial Ability

NWN warrants that it has reasonable assurance of obtaining sufficient financial resources to construct and operate the underground storage facility and related and supporting facilities including funds necessary to cover construction costs, operating costs for the design lifetime of the underground storage facility, and the costs of permanently shutting the underground storage facility down and maintaining it in a safe condition.

B. Ability to Construct and Operate

NWN warrants that it has the ability to take those actions necessary to ensure that the underground storage facility and related and supporting facilities will be constructed and operated in a manner consistent with its representations regarding effects on the public health, safety and welfare contained in its site certificate application, and supporting testimony and the terms and conditions of this agreement including compliance with all design, quality assurance and personnel qualifications and training requirements.

C. Protection of Public health and Safety

NWN warrants that it will take those actions, including compliance with all State and Federal statutes, rules and regulations, necessary to ensure that construction and operation of the Mist underground storage facility poses no danger to the public health and safety.

IV. CONDITIONS

The following conditions are provided pursuant to the provision of ORS 469.401.

A. State and Federal Law

1. NWN and EFSC shall abide by local ordinances and state law and the rules of the Council in effect on the date of this Site Certificate, except that upon a clear showing of a significant threat to the public health, safety or the environment that requires application of later-adopted laws or rules, EFSC may, pursuant to ORS 469.401(2), require NWN to comply with such later-adopted laws or rules.

2. Nothing in this agreement shall relieve NWN from complying with requirements of Federal laws and regulations which may be applicable to construction and operation of the underground storage reservoir and associated facilities, and with the terms and conditions of any permits and licenses which may be issued to NWN by pertinent federal agencies.

B. Control of Site

Prior to commencement of construction of the facility NWN shall present evidence satisfactory to EFSC that NWN has access to and full control over the underground reservoirs and sites for the related and supporting facilities, whether by ownership, lease or easement or otherwise as necessary to: Construct and maintain the underground reservoir, compressors, pipelines, injection withdrawal and other wells, and access roads to the facility necessary for the construction, operation, monitoring and regulation of the underground storage reservoir.

C. General Conditions

1. **Location**: Related or supporting facilities shall not be located at less than the minimum distances from any existing permanent habitable dwelling specified in OAR 345-024-0030 in effect on the date of this Certificate. [Amendment 10]

2. **Pipelines**: All pipelines in the project site shall be designed, built and operated in compliance with the requirements of the U.S. Department of Transportation set forth in Title 49, Code of Federal Regulations Part 192 subpart C in effect on the date of this Certificate, as administered by the Public Utility Commissioner of Oregon.

3. **Noise:** All compressors, pipelines, roads and related facilities shall be designed, constructed, installed and operated in such a manner so as not to violate the standards specified by the Oregon Department of Environmental Quality in OAR 340-35-35 (Noise Control Regulation) in effect on the date of this Certificate.

4. **Wells:** Operation, maintenance and abandonment of all wells on the site shall be in compliance with the applicable provision of ORS Chapter 520 and OAR Chapter 632 Division 10, in effect on the date of this Certificate, as administered by DOGAMI.

5. **Monitoring Program:** Deleted and superseded by conditions in Amendment 4. [Amendments 1,9, 10]

6. **Water Quality Protection:** NWN shall construct, build and operate surface facilities related to the underground gas storage reservoir so as to prevent emissions of pollution into ground or surface water in violation of rules at OAR Chapter 340 administered by DEQ. [Amendment 10]

7. **Fragile Soils:** Deleted and superseded by specific conditions related to soils. [Amendment 10]

8. **Socio-Economic Impacts:** Deleted and superseded by specific conditions related to public services. [Amendment 10]

9. **Water Rights:** NWN shall design, build and operate the surface facilities related to the underground gas storage reservoir in accordance with limited use licenses issued by the Department of Water Resources under Amendments 4-9. [Amendment 10]

10. **Applicants' Representations:** The facility shall be designed, built and operated in compliance with the representations made by ONG or NWN in satisfaction EFSC standards at OAR 345 Divisions 22 and 24. [Amendment 10]

11. **Gas Pressure:** NWN shall notify EFSC and Columbia County when it applies to DOGAMI for an increase in reservoir gas pressure. [Amendments 1, 10]

V. APPROVALS

The following approvals, permits, licenses, or certificates by governmental agencies are considered necessary to construct and operate the surface facilities related to the underground gas storage reservoir. Consistent with provisions of ORS 469.401 and 469.504 and any administrative rules adopted thereunder, NWN shall make application for these approvals, permits, licenses, or certificates, paying all applicable fees prior to construction of the facility or later as appropriate.

A. **Department of Geology and Mineral Industries**: Well drilling and other permits required by ORS Chapter 520 and OAR Chapter 632 Division 10.

B. **Department of Environmental Quality:** Air Contaminant Discharge Permit for the operation of the Mist underground storage facility.

C. **Public Utility Commissioner:** Compliance inspection of pipelines, pursuant to Title 49 CFR, Part 192 as necessary.

D. **Department of Consumer and Business Services:** Pressure vessel inspection, State Fire Marshall approvals and plan review of construction drawings.

E. **Department of Transportation:** Single trip permits for oversize or overweight loads.

F. **Columbia County:** Building, plumbing, electrical permits, and conditional land use permits. [Amendment 1]

VI. AMENDMENT OF SITE CERTIFICATE AGREEMENT

Amendments to this Site Certificate shall be governed by duly adopted rules of the Energy Facility Siting Council for the amendment of site certificates. As of the date of the execution of

Amendment 12~~1~~, the Council rules applicable to the amendment of this Site Certificate are OAR 345-027-0050, 0060, 0070 and 0080.

Changes to the facility that involve a change to the site boundary shall be reviewed as set forth in OAR 345-027-0050(1). Changes to the facility that involve the installation of pipelines or other surface facilities on land that is within the site boundary but that has not been characterized (ground truthed) in a previous Council order can be implemented without an amendment subject to Department review described at OAR 345-027-0050(5). Changes to the facility that involve the installation of pipelines or other surface facilities that have been characterized in a previous Council order or Department concurrence under section (5) may be implemented and reported under OAR 345-027-0050(4). In addition to these circumstances, pursuant to OAR 345-027-0050(5), NWN may ask the Department to determine whether a proposed change requires an amendment.

VII. CONDITIONS UNDER AMENDMENTS

A. Conditions related to EFSC Rules at OAR Chapter 345 Division 27

(Amendments 1 – 10)

1. Prior to any amendment that changes the site, NWN shall submit to the Oregon Department of Energy (ODOE) a legal description of the Project site to be appended to the Site Certificate prior to construction. [Amendments 4, 8]

2. The Project shall be designed, constructed, operated and retired:

    a. Substantially as described in the amended Site Certificate;

    b. In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the Council issues or amends the Site Certificate; and

    c. In compliance with all applicable permit requirements of other state agencies. [Amendment 4]

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

4. NWN shall, to the extent practical, prevent any condition from developing on the Project site that would preclude restoration of the site to a useful condition. [Amendments 4, 10]

5. NWN shall restore vegetation to the extent practicable and shall landscape portions of the area disturbed by Project construction in a manner compatible with its surroundings and/or proposed future use. Upon completion of Project construction, NWN shall dispose of all temporary structures not required for future use and all timber, brush, refuse and flammable materials or combustible material resulting from the clearing of land or from construction of the facility. [Amendment 4]

6. NWN may operate all compressors installed as of January 11, 2008 at full rated capacity.4 [Amendments 6, 10]

7. NWN shall notify ODOE, the State Building Codes Division and DOGAMI promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the Application for Amendment 6, 8, or 9. The Council may, at such time, require the certificate holder to propose additional mitigating actions in consultation with the Department of Geology and Mineral Industries and the Building Codes Division. [Amendment 6]

8. NWN shall notify ODOE, the State Building Codes Division and DOGAMI promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site. [Amendment 6]

9. NWN shall submit to ODOE copies of all incident reports involving the certified pipeline required under 49 CFR § 191.15. [Amendment 6, 11]

10. Pursuant to Amendment 11, the permitted daily throughput of the facility is 635 MMcfd. [Amendments 7, 8, 9, 11]

11. NWN shall establish, in consultation with affected state agencies and local governments, monitoring programs as required by the Site Certificate for impact on resources protected by the standards of OAR Chapter Divisions 22 and 24, and to ensure compliance with the Site Certificate. [Amendment 6]

12. If NWN becomes aware of a significant environmental change or impact attributable to the facility, NWN shall submit ODOE as soon as possible a

[4]Amendment 4, issued in 1997, contained a condition limiting total horsepower at Miller Station. The Council removed this limitation in 1999 under Amendment 6. No further operating limits apply to compression at Miller Station.

written report identifying the issue and assessing the impact on the facility and any affected Site Certificate conditions

B. Conditions related to EFSC Rules at OAR Chapter 345 Division 27

(Amendment 11)

1. The certificate holder shall begin construction of the components authorized by Amendment 11 within two years after the effective date of the amended site certificate. Under OAR 345-015-0085(8), the site certificate is effective upon execution by the Council chair and the certificate holder. [Amendment 11 General Standard Condition 1] [Mandatory Condition 345-027-0020(4)]

2. The certificate holder shall complete construction of the components authorized by Amendment 11 within four years of the effective date of the amended site certificate. [Amendment 11 General Standard Condition 2] [Mandatory Condition 345-027-0020(4)]

3. The certificate holder shall submit a legal description of the Amendment 11 site to the Oregon Department of Energy within 90 days after beginning operation of the components authorized by Amendment 11. The legal description required by this rule means a description of metes and bounds or a description of the site by reference to a map and geographic data that clearly and specifically identify the outer boundaries that contain all parts of the facility. [Amendment 11 Mandatory Condition 1] [OAR 345-027-0020(2)]

4. The certificate holder shall design, construct, operate and retire the components authorized by Amendment 11:

   a. Substantially as described in the amended Site Certificate;

   b. In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the Site Certificate is issued; and
   c. In compliance with all applicable permit requirements of other state agencies.

   [Amendment 11 Mandatory Condition 2] [OAR 345-027-0020(3)]

5. Except as necessary for the initial survey or as otherwise allowed for wind energy facilities, transmission lines or pipelines under this section, the certificate holder shall not begin construction, as defined in OAR 345-001-0010, or create a clearing on any part of the site until the certification holder has construction rights on all parts of the site. For the purpose of this rule,

"construction rights" means the legal right to engage in construction activities. For wind energy facilities, transmission lines or pipelines, if the certificate holder does not have construction rights on all or parts of the site, the certificate holder may nevertheless begin construction, as defined in OAR 345-001-001, or create a clearing on a part of the site if the certificate holder has construction rights on that part of the site and:

a. The certificate holder would construct and operate part of the facility on that part of the site even if a change in the planned route of a transmission line or pipeline occurs during the certificate holder's negotiations to acquire construction rights on another part of the site; or

b. [*relates to wind energy facilities and therefore not applicable]*

[Amendment 11 Mandatory Condition 3] [OAR 345-027-0020(5)]

6. The certificate holder shall prevent the development of any conditions on the site that would preclude restoration of the site to a useful, non-hazardous condition to the extent that prevention of such site conditions is within the control of the certificate holder. [Amendment 11 Mandatory Condition 4] [OAR 345-027-0020(7)]

7. Upon completion of construction, the certificate holder shall restore vegetation to the extent practicable and shall landscape all areas disturbed by construction in a manner compatible with the surroundings and proposed use. Upon completion of construction, the certificate holder shall remove all temporary structures not required for future operation and dispose of all timber, brush, refuse and flammable or combustible material resulting from clearing of land and construction of the facility. [Amendment 11 Mandatory Condition 5] [OAR 345-027-0020(11)]

8. The certificate holder shall notify the department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in Request for Amendment No. 11. After the department receives the notice, the Council may require the certificate holder to consult with the Department of Geology and Mineral Industries and the Building Codes Division and to propose mitigation actions. [Amendment 11 Mandatory Condition 6] [OAR 345-027-0020(13)]

9. The certificate holder shall notify the department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or

in the vicinity of the site. [Amendment 11 Mandatory Condition 7] [OAR 345-027-0020(14)]

10. If the certificate holder becomes aware of a significant environmental change or impact attributable to the Amendment 11 components, the certificate holder shall, as soon as possible, submit a written report to the department describing the impact on the facility and any affected site certificate conditions. [Amendment 11 Mandatory Condition 8] [OAR 345-027-0020(6)]

11. Before any transfer of ownership of the facility or ownership of the site certificate holder, the certificate holder shall inform the department of the proposed new owners. The requirements of OAR 345-027-0010 apply to any transfer of ownership that requires a transfer of the site certificate. [Amendment 11 Mandatory Condition 9] [OAR 345-027-0020(15)].

12. The certificate holder shall design, construct and operate all pipelines in accordance with:

    a. The requirements of the U.S. Department of Transportation as set forth in Title 49, Code of Federal Regulations Part 192. [OAR 345-027-0023(3)(a)]

    b. The certificate holder shall develop and implement a program using the best available practicable technology to monitor the pipeline to ensure protection of public health. [Amendment 11 Site Specific Condition 2] [OAR 345-027-0023(3)(b)]

13. The corridor for the North Mist Transmission Pipeline, associated with Amendment 11, shall be as shown in Request for Amendment 11, Exhibit C, Project Location and Maps. Changes in pipeline corridor shall require prior Council approval. [Amendment 11 Site Specific Condition 3] [OAR 345-027-0023(5)]

14. Pursuant to Amendment 11, the site boundary is 5,472 acres and the permitted daily throughput of the facility is 635 MMcfd. [Amendment 11 Site Specific Condition 4] [OAR 345-027-0023(6)]

C. <u>Conditions related to EFSC Standards at OAR Chapter 345 Division 22</u>

1. Conditions Generally Applicable to the Facility

    a. Socio Economic Impact

(1) NWN shall provide the Mist Birkenfield Rural Fire Protection District with an annual tour of the Miller Station to familiarize personnel with the facility in case of an emergency. [Amendment 4]

b. Waste Minimization

(1) NWN shall transport construction waste materials to an appropriate recycling facility or to an approved sanitary landfill for nonrecyclable goods. NWN shall collect scrap steel and welding rods for transportation to a recycling facility. Silt fence and straw bales shall be transported to an approved landfill. [Amendment 4, 11]

(2) Nonhazardous wastes associated with the Project such as crankcase oil, triethylene glycol and oil/water separator oils shall be collected, transported and recycled by a vendor as bunker fuel. Oily rags and oil filters shall be incinerated off site by a permitted disposal facility. Granular activated carbon will be collected and sent to a permitted facility for regeneration. NWN may use alternate methods of disposal if approved by ODOE. [Amendment 4, 11]

(3) Water used for pressure testing shall be disposed of in a manner consistent with approved permits. [Amendment 4, 11]

c. Retirement

(1) Prior to termination of the Site Certificate, NWN shall retire the Project 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) Disassemble the buildings and steel structures, break up the concrete slabs, and dispose of these materials either as scrap or at an appropriate landfill,

(c) Remove above ground portions of all pipelines,

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

(e) Inspect all pipelines and remove any hazardous materials found, and dispose of hazardous materials generated from cleaning the pipelines in accordance with applicable state hazardous materials statutes and rules. [Amendment 4, 11]

2. Conditions Applicable to Amendment 4

a. Structural and Soils

(1) The pipeline corridor shall be as shown on Figure G-1 of Exhibit 10 of the Application for Amendment 4. Changes in pipeline corridor shall require prior Council approval. [Amendment 4]

(2) NWN shall construct modifications to Miller Station substantially in accordance with the recommendations in Exhibit 11, Section 7 of the Application for Amendment 4. In the vicinity of the new compressor building, the adjacent equipment, in the dehydration area and in areas where there will be heavy loads and traffic, all fill will be classed as "structural fill." This fill will utilize imported soil and will be compacted as specified in Section 7.1.3 of Exhibit 11 of the Application for Amendment 4. For trench backfill in unimproved areas (no surface traffic), the backfill above pipe will consist of removed soil placed with nominal compaction, as specified in Section 7.1.3 of Exhibit 11 of the Application for Amendment 4. [Amendment 4]

(3) NWN shall design and construct pipelines substantially in accordance with the recommendations in Section 8 of Exhibit 11 of the Application for Amendment 4. [Amendment 4]

b. Fish and Wildlife Habitat

(1) NWN shall utilize directional drilling for the pipeline installation at the Nehalem River. Drilling shall begin at points no closer than 300 feet from the river bank and shall place the pipeline at least 20 feet below the river bed. [Amendment 4]

(2) NWN shall minimize impacts for the Category 2 wetland north of highway 202 by taking steps including but not limited to:

(a) using a single trench for dual pipelines and keeping the installation as narrow as possible while remaining consistent with safety and practical installation requirements.

(b) timing construction for the dry time of year, not to extend beyond November 15, 1997.

(c) separating and returning topsoil to the trench backfill surface for pipelines and installing clay barriers at each end of the wetland crossing.

(d) avoiding the rest of the wetland during construction by use of the existing road through the wetland for construction equipment. [Amendment 4]

(3) NWN shall restore habitat in the Category 2 wetland to the north of highway 202 to preconstruction conditions within two growing seasons. [Amendment 4]

(4) NWN shall minimize the loss of habitat in forested areas and clear cuts by allowing vegetation to grow back in the construction corridor except for the 40 foot area directly over the pipeline. NWN shall restore surface vegetation in farmed areas. [Amendment 4]

(5) NWN shall time the crossing of any small tributaries or creeks during the dry period, and shall restore the stream bed and stream banks before the rainy season, not to extend beyond November 15, 1997. [Amendment 4]

(6) NWN shall minimize impact to wetlands by separating the upper foot of topsoil from the rest of the trench spoils and replacing it on the top of the trench. [Amendment 4]

(7) NWN shall filter any water pumped from the trench during construction to remove sediments before it is returned to the wetland. [Amendment 4]

(8) NWN shall complete pipeline construction through the wetland by November 15, 1997. [Amendment 4]

c. Historic, Archeological and Cultural

(1) A qualified archeologist shall monitor all grading and excavation activities associated with boring operations. If any artifacts or other cultural materials that might qualify as “archeological objects” as defined at ORS 358.905(1)(c) are identified, ground disturbing activities will cease until the archeologist can evaluate their potential significance. If the material is likely to be eligible for listing

on the National Register of Historic Places or to qualify as archeological objects or sites, as defined at ORS 358.905(j)(c), NWN shall consult with the State Historic Preservation Office ("SHPO") and will comply with the archeological permit requirement administered by the SHPO as set forth in OAR 736 Division 51. [Amendment 4]

3. Conditions Applicable to Amendment 6

a. Structural and Soils

(1) The pipeline corridor shall be substantially as shown on Figure G-l of Exhibit 14 of the Application for Amendment 6. NWN may change the pipeline corridor by obtaining ODOE or EFSC concurrence as described in OAR 345-027-0050. [Amendments 6, 10]

(2) NWN shall design and construct the pipelines substantially in accordance with the recommendations in Sections 5.2 and 5.3 of Exhibit 14 of the Application for Amendment 6. [Amendment 6]

b. Land Use

(1) NWN shall provide Columbia County Land Development Services (LDS) with drawings showing the final locations of all wells (underground natural gas storage facilities) and pipelines as constructed. [Amendment 6]

(2) NWN shall submit to LDS a letter from the Oregon Department of Transportation that all of ODOT's permit requirements have been met. [Amendment 6]

(3) NWN shall submit to LDS a letter from the Mist-Birkenfeld & Vernonia Fire Districts stating that all fire safety concerns have been addressed. [Amendment 6]

c. Fish and Wildlife Habitat

(1) NWN shall return the construction area to approximately its original grade, and revegetate the disturbed areas using appropriate plant species. NWN will allow and encourage natural vegetation to return in the disturbed area, except that NWN may prevent large trees from growing in the permanent maintenance right-of-way which shall be as narrow as practicable and no greater than 40 feet wide. [Amendment 6]

(2) During construction NWN shall use appropriate erosion control and sediment control measures, such as those in Washington County Erosion Control Plans Technical Guidance Book (February 1994), as necessary to prevent material from leaving the construction area or adversely affecting water quality in nearby and downslope streams. NWN shall also use best management practices (BMP) and follow Oregon Department of Forestry, Forest Practice Administrative Rules during construction. [Amendment 6]

4. Conditions Applicable to Amendments 8 and 9

a. Structural and Soils

(1) NWN shall design the modifications authorized by Amendments 8 and 9 in accordance with the seismic design factors show in Table 2 of GeoEngineers' September 18, 2001 report "EFSC Structural Standard Information, Miller Station Gas Compression Facility, Mist, Oregon." [Amendments 8, 9]

(2) NWN shall design, engineer and construct the modifications authorized by Amendments 8 and 9 substantially in accordance with the recommendations in the section entitled "Non-Seismic Design and Construction Recommendations" in GeoEngineers' September 18, 2001 report "EFSC Structural Standard Information, Miller Station Gas Compression Facility, Mist, Oregon. [Amendments 8, 9]

5. Conditions Applicable to Amendment 9

a. Structural and Soils

(1) During construction authorized by Amendment 9, NWN shall implement the recommendations in Exhibit 6, section 7 of the application for Amendment 9. [Amendment 9]

b. Fish and Wildlife Habitat

(1) During the construction under Amendment 9, NWN will minimize removal of vegetation to the extent practical. [Amendment 9]

(2) Where an Amendment 9 pipeline is installed adjacent to an existing one, the permanent easement will be only 10 feet wider than the existing one. However, where the Schlicker pool pipeline

approaches the Busch valve station, the permanent easement may be 30 feet wider than the existing one to allow installation of surface equipment. [Amendment 9]

(3) NWN will use the erosion control measures required for the NPDES 1200-C (a federal permit) and Best Management Practices (BMPs) to prevent erosion of soil into the ephemeral stream channel during construction of the Amendment 9 pipelines. [Amendment 9]

(4) Following construction of the pipelines for Amendment 9, NWN will allow and encourage native vegetation to grow back in the temporary construction easement and stating areas. [Amendment 9]

(5) Where revegetation is necessary in the permanent right-of-way for the pipelines constructed under Amendment 9, NWN will plant vegetation that provides forage for big game species. [Amendment 9]

(6) During pipeline construction for Amendment 9, NWN will restore any stream channels to pre-construction conditions, including grades, contours, morphology and substrate and will take measures to prevent scouring of stream slopes. [Amendment 9]

(7) At stream crossings, crews will use hand tools to control [right-of-way] vegetation in the permanent easement for the Amendment 9 pipelines. [Amendment 9]

(8) Construction of the Busch well pipeline will follow the US Fish and Wildlife Service scheduling and distance guidelines to avoid adverse impact to the bald eagle nest. [Amendment 9]

6. Conditions Applicable to Amendment 11

a. Structural Standard

(1) The site certificate holder shall design and build the components authorized by Amendment 11 according to the Oregon Structural Specialty Code which uses the 2012 International Building Code, with current amendments by the state of Oregon and local agencies. [Amendment 11 Structural Standard Condition 1]

(2) The site certificate holder shall design, engineer, and construct the components authorized by Amendment 11 to avoid dangers to human safety presented by seismic hazards affecting the site that

are expected to result from all maximum probable seismic events. Seismic hazards include ground shaking, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement, and subsidence. [Amendment 11 Structural Standard Condition 2] [OAR 345-027-0020(12)]

(3) Prior to beginning construction of Amendment 11 components, the site certificate holder shall complete the following geotechnical investigations. The final scope of the studies will be determined by NWN's geotechnical consultants and confirmed by the department in consultation with DOGAMI. The additional studies shall include:

- Civil site plans for the NMCS, the utility conduit, and NMTP alignments rights of way. Civil site plans will include:
    - Existing topography,
    - Proposed grading (cut and fill),
    - Alignment of the utility conduit and NMTP,
    - Existing utilities, culverts, and other site features within the rights of way, and
    - Final positioning of equipment within the NMCS area.
- Site-specific geotechnical studies for the proposed cut and fill slopes along the pipeline and utility conduit alignments, following the development of civil site plans and site grading delineation. Site-specific geotechnical studies will include slope stability analysis, as needed, to provide recommendations to mitigate potential adverse impacts to slope stability that may result from cutting into hillsides adjacent to existing roadways. The study will also include recommendations for restoring site grades to pre-construction conditions, and recommendations for engineered fill slopes will include specifications for materials to be used, adequacy of native soils to be used as fill, lift thickness, and compaction criteria for wet and dry weather conditions.
- Site-specific geotechnical evaluation for the development of the NMCS, once final site grading and final facility location is determined. Additional borings will be completed to define geotechnical conditions at the proposed equipment locations at the site once final layout is determined. If cuts and fills greater than five feet are anticipated, additional borings will be completed in cut and fill slope locations to evaluate the stability of cut and fill slopes. The final geotechnical engineering report will include the information and assessment identified in Exhibit H, Section H.5.

- Evaluation of the two landslides identified along the utility conduit alignment to better define risk to adjacent logging road and utility conduit, and to evaluate potential road stabilization options to be discussed with the road owner.

[Amendment 11 Structural Standard Condition 3]

(4) The site certificate holder shall include the identified landslide hazards in its established landslide monitoring program. If future investigations identify additional landslide hazards that may adversely impact the Amendment 11 components, those landslide hazards shall also be added to the landslide monitoring program. [Amendment 11 Structural Standard Condition 4]

b. Soil Protection

(1) During construction of the Amendment 11 components, the certificate holder shall conduct all construction work in compliance with a final Erosion and Sediment Control Plan that is satisfactory to the Oregon Department of Environmental Quality as required under the National Pollutant Discharge Elimination System Construction Stormwater Discharge General Permit 1200-C. [Amendment 11 Soil Protection Condition 1]

(2) During construction of Amendment 11 components occurring partially or wholly on privately-owned agricultural land, the certificate holder shall implement the Agricultural Impact Mitigation Plan, provided as Attachment D of this order. [Amendment 11 Soil Protection Condition 2]

(3) Prior to beginning construction of Amendment 11 components, the certificate holder shall prepare and submit to the department for review and approval a construction spill prevention and management plan (SPMP) for implementation during construction. The construction SPMP shall include at a minimum the following procedures and best management practices (BMPs):

- Use secondary containment around stationary equipment (including drill rigs, drilling fluid pumps, centrifugal pumps, and mobile fluid storage tanks),
- Use drip pans during equipment maintenance,
- Properly store materials on-site,
- Maintain spill kits at construction areas,

- Refuel all equipment at least 100 feet away from water bodies and delineated wetlands,
- Train employees on the BMPs and procedures included in the construction SPMP, and
- The requirements for oil and hazardous material emergency response consistent with DEQ rules at OAR 340, Division 142.

[Amendment 11 Soil Protection Condition 3]

(4) During horizontal directional drilling (HDD) associated with components authorized by Amendment 11, the certificate holder shall implement the procedures in the Inadvertent Return Response Plan (IRRP), provided as Attachment F of this order. The certificate holder shall employ a monitor during HDD to watch for surface fluid release at the entry and exit points of the HDD drill and the area within 150 feet of the entry/exit locations. The certificate holder shall add the Oregon Department of Energy to the list of agencies that will be contacted by phone within 24 hours of an inadvertent return that impacts a wetland or perennial stream. The certificate holder shall contact the department within 48 hours if there is an inadvertent return that does not impact wetlands or waterways but does require issuance of a containment installation order. [Amendment 11 Soil Protection Condition 4]

(5) Prior to operation of components authorized by Amendment 11, the certificate holder shall prepare and submit to the department for review and approval an operational Spill Prevention and Management Plan (SPMP). The operational SPMP shall contain at a minimum the following procedures and best management practices:
- Install containment diking at the NMCS designed to hold chemical spills.
- Install curbing at the NMCS buildings to prevent spills and leaks from being released to the environment, and routing runoff to treatment or control areas.
- Install drip pans to contain very small volumes of leaks, drips, and spills.
- Maintenance of on-site absorbent socks and absorbent granules to control and clean-up a spill or release.
- Train employees on the BMPs and procedures included in the operational SPMP.
- The requirements for oil and hazardous material emergency response pursuant to DEQ rules at OAR 340, Division 142.

[Amendment 11 Soil Protection Condition 5]

c. Land Use

(1) During construction and operation, the certificate holder shall design and construct signs for the Amendment 11 components in compliance with sign requirements of Columbia County Zoning Ordinance (CCZO) 308.6. [Amendment 11 Land Use Condition 1]

(2) Prior to construction of components authorized by Amendment 11, the certificate holder shall coordinate with and provide written notification to surface property owners on timing and location of tree removal and other site preparation and ground disturbing activities associated with the NMCS and the I/W well pad sites. Copies of written notification to each affected surface property owner shall be maintained onsite and made available to the department upon request. [Amendment 11 Land Use Condition 2]

(3) Prior to construction of components authorized by Amendment 11, the certificate holder shall provide written notification to the department verifying whether the NMCS parcel and I/W well pad site would be leased or purchased from the current landowners. If one or both sites are purchased, the certificate holder shall comply with the following requirements:

(a) The certificate holder shall file a waiver of remonstrance with Columbia County certifying that the certificate holder would not remonstrate against or begin legal action or suit proceeding to cause or persuade the owner or operator of any farm or forest lands to modify the conduct or legal and accepted farm or forest operations. A copy of the waiver of remonstrance shall be provided to the department and maintained onsite for the duration of construction and made available to the department upon request.

(b) The certificate holder shall secure a partition for the parcel in accordance with Columbia County Subdivision and Partitioning Ordinance and shall ensure that the purchased site complies with applicable parcel dimensions, County Road fire safety design standards, and setbacks. A copy of the approved partition shall be maintained onsite for the duration of construction and operation and made available to the department upon request. [Amendment 11 Land Use Condition 3]

(4) Prior to construction or placement of a utility or facilities within a public road or county right-of-way, the certificate holder shall apply for and obtain a Public Road Construction Permit from the Columbia County Road Department. A copy of the road permit shall be maintained onsite and made available to the department upon request. [Amendment 11 Land Use Condition 4]

(5) Prior to construction of Amendment 11 components, the certificate holder shall apply for and obtain a County Road access permit (part of the County Building Permit) from the Columbia County Land Development Services Department. A copy of the County Road access permit shall be maintained onsite and made available to the department upon request. [Amendment 11 Land Use Condition 5]

(6) Prior to construction of the North Mist Transmission Pipeline, associated with Amendment 11, the certificate holder shall apply for and obtain a Floodplain Development permit from Columbia County Land Development Services Department for the NMTP for areas where the pipeline corridor is located in a Flood Hazard Area. A copy of the Development Permit shall be maintained onsite and made available to the department upon request. [Amendment 11 Land Use Condition 6]

(7) Prior to construction of the North Mist Transmission Pipeline, associated with Amendment 11, the certificate holder shall apply for and obtain a Stream/Wetland Protection permit from Columbia County Land Development Services Department for the NMTP for areas where the pipeline corridor is located in a Wetland Area overlay zone. [Amendment 11 Land Use Condition 7]

d. Retirement and Financial Assurance

(1) Before beginning construction of the components authorized by Amendment 11, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition. The certificate holder shall maintain a bond or letter of credit in effect at all times until the Amendment 11 components have been retired. The Council may specify different amounts for the bond or letter of credit during construction and during operation of the Amendment 11 components. [OAR 345-027-0020(8)] [Amendment 11 Retirement and Financial Assurance Condition 1]

(2) Prior to construction of the components authorized by Amendment 11, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The initial bond or letter of credit amount for the Amendment 11 components is $3.030 million (in first quarter 2015 dollars), to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (b) of this condition:

(a) The certificate holder may adjust the amount of the initial bond or letter of credit based on the final design configuration of the Amendment 11 components. Any revision to the restoration costs should be adjusted to the date of issuance as described in (b) and subject to review and approval by the Council.

(b) The certificate holder shall adjust the amount of the bond or letter of credit using the following calculation:

(1) Adjust the amount of the bond or letter of credit (expressed in first quarter 2015 dollars) to present value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency and using the first quarter 2015 index value and the quarterly index value for the date of issuance of the new bond or letter of credit. If at any time the index is no longer published, the Council shall select a comparable calculation to adjust first quarter 2015 dollars to present value.

(2) Round the result total to the nearest $1,000 to determine the financial assurance amount.

(c) The certificate holder shall use an issuer of the bond or letter of credit approved by the Council.

(d) The certificate holder shall use a form of bond or letter of credit approved by the Council. The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under OAR 345-026-0080. The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility site.

[Amendment 11 Retirement and Financial Assurance Condition 2]

(3) The certificate holder shall retire the components associated with Amendment 11 if the certificate holder permanently ceases construction or operation of the Amendment 11 components. The certificate holder shall retire the components associated with Amendment 11 according to a final retirement plan approved by the Council, as described in OAR 345-027-0110. The certificate holder shall pay the actual cost to restore the site to a useful, non-hazardous condition at the time of retirement, notwithstanding the Council's approval in the amended site certificate of an estimated amount required to restore the site. [OAR 345-027-0020(9)] [Amendment 11 Retirement and Financial Assurance Condition 3]

(4) If the Council finds that the certificate holder has permanently ceased construction or operation of the components authorized by Amendment 11 without retiring the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110, the Council shall notify the certificate holder and request that the certificate holder submit a proposed final retirement plan to the department within a reasonable time not to exceed 90 days. If the certificate holder does not submit a proposed final retirement plan by the specified date, the Council may direct the department to prepare a proposed final retirement plan for the Council's approval. Upon the Council's approval of the final retirement plan, the Council may draw on the bond or letter of credit described in section (8) to restore the site to a useful, non-hazardous condition according to the final retirement plan, in addition to any penalties the Council may impose under OAR Chapter 345, Division 29. If the amount of the bond or letter of credit is insufficient to pay the actual cost of retirement, the certificate holder shall pay any additional cost necessary to restore the site to a useful, non-hazardous condition. After completion of site restoration, the Council shall issue an order to terminate the site certificate if the Council finds that the facility has been retired according to the approved final retirement plan. [OAR 345-027-0020(16)] [Amendment 11 Retirement and Financial Assurance Condition 4]

e. Fish and Wildlife Habitat

(1) Prior to construction of components authorized by Amendment 11, the certificate holder shall conduct a field-based habitat, fish, and wildlife survey of the area within and extending to the site boundary of the Amendment 11 components. Following completion of the field survey, the certificate holder shall provide the department and the Oregon Department of Fish and Wildlife (ODFW) the report containing the results of the survey, including a map set of the components associated with Amendment 11, showing all project components, the habitat categories of all areas that will be affected by the project, and the locations of any sensitive resources such as active bird nests. The report shall also include an updated version of Table FW-1 *Potential Temporary and Permanent Impacts by Habitat Category and Type* of the final order, showing the acres of expected temporary and permanent impacts to each habitat category, type, and sub-type.

In classifying the affected habitat into habitat categories, the certificate holder shall consult with the department and ODFW. The certificate holder shall not begin construction of the components associated with Amendment 11 until the habitat assessment has been approved by the department, in consultation with ODFW. If the department and ODFW have not provided a response within 30 days following the site certificate holder's submission of the habitat assessment to the department and ODFW, the assessment will be considered approved. The certificate holder shall not construct any facility components within areas of Category 1 habitat and shall avoid temporary disturbance of Category 1 habitat.
[Amendment 11 Fish and Wildlife Condition 1]

(2) Prior to construction of Amendment 11 components, the certificate holder shall flag all environmentally sensitive areas as restricted work zones. Restricted work zones shall include but not be limited to areas with sensitive or protected plant species, including candidate species, wetlands and waterways that are not authorized for construction impacts, areas with seasonal restrictions, and active State sensitive species bird nests. [Amendment 11 Fish and Wildlife Condition 2]

(3) During construction, all Project personnel shall attend an environmental awareness training session conducted by an environmental professional prior to working on the Project site. The

training shall include, but not be limited to, the following topics: identification of approved Project boundaries and access roads including flagged exclusion areas; identification of sensitive wetland and waterbody resources; identification of sensitive and special status plant and wildlife species found in the analysis area; techniques regarding avoidance and minimization measures the certificate holder will implement; the notification process to be followed if new sensitive resources are identified; permit requirements; buffer distances from sensitive and protected resources; work timing restrictions including seasonal restrictions; the role of the onsite environmental inspector(s) and NWN environmental personnel; and other topics as necessary. A copy of the training shall be provided to the department. Records of completed worker training shall be maintained onsite and made available to the department upon request. [Amendment 11 Fish and Wildlife Condition 3]

(4) During construction and operation of components authorized by Amendment 11, the certificate holder may use herbicides to control noxious weeds, undesirable plant species, and vegetation within the site boundary. Herbicides shall be applied by an appropriately licensed person and according to all state and federal regulations. The certificate holder shall consult with landowners prior to applying herbicides on any land not owned by the certificate holder. If requested by a landowner, the certificate holder shall not use herbicides on that landowner's property. The certificate holder shall not allow herbicides to migrate onto nearby property from herbicide use on another parcel. Herbicides shall not be used in or near sensitive environments. Herbicides shall not be used within 100 feet of any occurrence of special status or otherwise sensitive plant species. Except where the product label applies more stringent requirements, when applied from the ground, herbicides shall not be used within 10 feet of any wetlands, stream, river, or other waterway except if specifically approved for use near aquatic environments. [Amendment 11 Fish and Wildlife Condition 4]

(5) During construction and operation of Amendment 11 components, the certificate holder shall restrict vehicle speed on roadways within the site boundary to 25 miles per hour. [Amendment 11 Fish and Wildlife Condition 5]

(6) Prior to construction of Amendment 11 components the certificate holder shall obtain an ODFW Wildlife Capture, Holding, Transport, and Relocation Permit specifically for reptiles and amphibians. The

certificate holder shall implement all provisions of the permit. A copy of the permit shall be maintained on-site and shall be made available to the department upon request. [Amendment 11 Fish and Wildlife Condition 6]

(7) Prior to construction of Amendment 11 components, the certificate holder shall finalize and implement the Habitat Mitigation Plan (HMP) provided in Attachment E of the final order, as approved by ODOE in consultation with ODFW. Provision 7(f) regarding impacted acreage calculations shall be completed and submitted to the department after construction is complete as described in the condition below.

(a) The final HMP shall include an implementation schedule for all mitigation actions, including securing the conservation easement, conducting the ecological uplift actions at the compensatory mitigation parcel, revegetation and restoration of temporarily impacted areas, and monitoring. The mitigation actions shall be implemented according to the following schedule, as included in the HMP:

a. Restoration and revegetation of temporary construction-related impact area shall be conducted no later than the fall of the year of construction.

b. The habitat enhancement actions at the compensatory habitat mitigation site shall be implemented concurrent with construction. Plantings along the ditch shall occur in the fall of the year of construction.

(b) The final HMP shall include a plan to remove noxious weeds and revegetate areas that are temporarily disturbed during construction within the 80-foot construction easement in the commercial timberland portion of the Project, south of U.S. Highway 30. Revegetation shall be with seed mixes and forbs beneficial to fish and wildlife as recommended by ODOE, in consultation with ODFW. NWN shall implement this condition regardless of whether the underlying landowner has conducted timber harvest prior to construction of Amendment 11 components.

(c) The final HMP shall include a monitoring and reporting program for evaluating the effectiveness of all mitigation actions, including restoration of temporarily impacted areas and ecological uplift actions at the compensatory mitigation parcel. Monitoring of the weed removal and revegetation per condition 7(b) shall be for one year following implementation. Monitoring of the compensatory mitigation parcel shall be during years one, three, and five following implementation.

(d) The final HMP shall be submitted and ODOE's concurrence received prior to beginning construction. ODOE shall consult with ODFW on the final HMP. If ODOE and ODFW have not provided a response within 30 days following the site certificate holder's submission of the final HMP, the HMP will be considered approved.

(e) The HMP may be amended from time to time by agreement of the certificate holder and the department. Such amendments may be made without amendment to the site certificate. The Council authorizes the department to agree to amendments of this plan and to mitigation actions that may be required under this plan; however, the Council retains the authority to approve, reject or modify any amendment of this plan agreed to by the department.

(f) Within 30 days of completion of construction, the certificate holder shall submit to the department and ODFW an updated HMP Table 1, providing the finalized acreage numbers for both temporary and permanent impacts by habitat category and type. Mitigation shall be commensurate with the final acreage numbers, the approved HMP, and the EFSC Fish and Wildlife Habitat standard.

[Amendment 11 Fish and Wildlife Condition 7]

(8) During construction of Amendment 11 components, NWN shall employ at a minimum one environmental inspector to be onsite daily. The environmental inspector shall oversee permit compliance and construction, and ensure that known sensitive environmental resources are protected. The environmental inspector shall prepare a weekly report during construction, documenting permit compliance and documenting any corrective actions taken. Reports shall be kept on file and available for inspection by the department upon request. [Amendment 11 Fish and Wildlife Condition 8]

f. Threatened and Endangered Species

(1) To the extent practicable, the certificate holder shall conduct construction, operation, and maintenance activities of Amendment 11 components during daylight hours outside of dawn and dusk in Columbian white-tailed deer habitat. Dawn is assumed to be 30 minutes prior to sunrise and dusk is assumed to be 30 minutes after sunset. HDD boring may occur throughout a 24-hour period. [Amendment 11 Threatened and Endangered Species Condition 1]

(2) To the extent practicable, the certificate holder shall avoid construction activities within the range of the Columbian white-tailed deer during fawning season of June 1 to July 31. Except that HDD boring activities may begin or recommence on July 15 rather than August 1. [Amendment 11 Threatened and Endangered Species Condition 2]

(3) During construction of Amendment 11 components in Columbia white-tailed deer habitat, the certificate holder shall install deer escape ramps at all open trenches and to the extent practicable, minimize the time the trench is left open. [Amendment 11 Threatened and Endangered Species Condition 3]

(4) Prior to construction of Amendment 11 components, the certificate holder shall conduct a pre-construction survey for tall bugbane in the vicinity of the population identified during the 2013-2014 botanical survey. Areas with tall bugbane will be flagged and those plants that occur in the vicinity of proposed construction activities will be protected using construction safety fencing or similar visual and physical barrier to protect from construction-related impacts. Results of the pre-construction survey shall be reported to the department. [Amendment 11 Threatened and Endangered Species Condition 4]

(5) Prior to construction of amendment 11 components, if any previously unidentified state-listed threatened or endangered species (listed under ORS 564.105(2) or ORS 496.172(2)) is discovered during the pre-construction survey (see Fish and Wildlife Condition 1), the certificate holder shall consult with ODFW or ODA and the department to develop a protection plan for that species and to maintain continued compliance with the Threatened and Endangered Species standard (OAR 345-022-0070). [Amendment 11 Threatened and Endangered Species Condition 5]

g. Historic, Cultural and Archeological Resources

(1) During construction related ground-disturbing activities of components authorized by Amendment 11, if any artifacts or other cultural materials that might qualify as “archaeological objects” as defined at ORS 358.905(1)(a) or “archaeological sites” as defined at ORS 358.905(1)(c) are identified, ground disturbing activities will cease until a professional archeologist can evaluate its potential significance. The certificate holder shall flag or mark the area and

shall notify the department and the State Historic Preservation Office (SHPO) of the find immediately.

If SHPO determines that the resource is significant, the certificate holder shall make recommendations to the Council for mitigation, including avoidance, field documentation, and data recovery, in consultation with the department, SHPO, interested tribes and other impacted parties. The certificate holder shall not restart work in the affected area until the certificate holder has demonstrated to the Council that it has complied with the archaeological resource protection regulations.

In accordance with Fish and Wildlife Condition 4, the worker training shall include a section describing this permit condition, how to identify archaeological objects, and the certificate holder's requirement to avoid impacting significant historic, cultural, and archaeological resources. [Amendment 11 Historic, Cultural and Archeological Condition 1]

h. Public Services

(1) Prior to construction, the certificate holder shall develop a fire protection and safety plan for the construction and operation of the NMCS and NMTP. The fire protection and safety plans shall include personnel training requirements, training materials, and accident prevention measures and plans. The certificate holder shall consult with and shall obtain written concurrence from the Mist-Birkenfeld Fire Marshal and Clatskanie RFPD Fire Marshal to confirm construction and operational activities comply with all applicable requirements. The certificate holder shall submit a copy of the NMCS and NMTP fire protection and safety plans to the department. [Amendment 11 Public Services Condition 1]

i. Waste Minimization

(1) Prior to construction of the North Mist Transmission Pipeline associated with Amendment 11, the certificate holder shall seek land-owner authorization for bentonite land application and shall provide to the department the following information:

(a) List of land-owners contacted for authorization of bentonite application including first and last name, address and tax lot identification number, and

(b) Written consent letters obtained from land-owners authorizing bentonite application, and
(c) Estimated quantity of bentonite to be applied to each land owner whom provided consent per (b).

In the event land-owner authorization for bentonite land application is not received for all or a portion of the quantities generated during HDD construction, the site certificate holder shall provide to the department the information requested in (a), estimated total quantity of bentonite to be transported to a disposal facility, and name of disposal facility where bentonite will be transferred. [Amendment 11 Waste Minimization Condition 1]

(2) Before beginning construction of components authorized by Amendment 11, the certificate holder shall provide confirmation in writing to the department that the third parties have obtained all necessary permits or approvals for receiving and discharging hydrostatic test water and shall provide to the department proof of agreement between the certificate holder and the third parties regarding access to the resources or services secured by the permits or approvals. [Amendment 11 Waste Minimization Condition 2]

(3) Before beginning operation of components authorized by Amendment 11, the certificate holder shall provide confirmation in writing to the department that the third parties have obtained all necessary permits or approvals for disposing of produced saline process water from the Adams reservoir and shall provide to the department proof of agreement between the certificate holder and the third parties regarding access to the resources or services secured by the permits or approvals. [Amendment 11 Waste Minimization Condition 3]

D. Conditions Related to EFSC Standards at OAR Chapter 345 Division 24

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

1. Conditions Applicable to this Facility

   a. NWN shall design, construct, operate and retire the Project in accordance with applicable statutes, rules and ordinances. [Amendment 4]

   b. NWN shall construct all pipelines in accordance with the requirements of the U.S. Department of Transportation as set forth in Title 49, Code of Federal Regulations Part 192. [Amendment 4]

   c. Isolation valves shall be located at both ends of the 16 inch pipelines connecting Miller Station and the Busch Valve Station and at both ends of the eight inch and six inch pipelines connecting the well sites with the sixteen inch pipeline at the Busch Valve Station. [Amendment 4]

   d. NWN shall maintain a program to monitor the proposed pipeline to ensure protection of the public health and safety, including but not limited to:

      (1) Pressure sensing devices positioned at Miller Station and near the wellheads to relay critical information to both Miller Station and, as needed, from Miller Station to the Portland gas control center,

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

      (3) Emergency response personnel on duty 24 hours per day, at Miller Station or in Portland, trained to respond to situations that require immediate attention. [Amendment 4]

2. Condition Applicable to Amendment 4

   a. Within two months of initial startup of the new compressor, NWN shall conduct noise surveys at the two locations previously tested on February 20 and 21, 1997 to demonstrate compliance with DEQ Noise regulations at OAR 340-35-0035. Sound measurements shall be made with all compressors running at within 5% of horsepower permitted by this Site Certificate. Measurements shall be made at each location during atmospheric conditions best for sound propagation. Sound monitoring shall not be conducted when winds are in excess of 5 mph. [Amendment 4]

3. Condition Applicable to Amendment 8

   a. Within six months of initial startup of the new compressor authorized by Amendment 8, NWN shall conduct noise surveys at the locations previously tested pursuant to Amendment 4 to demonstrate compliance with DEQ Noise regulations at OAR 340-035-0035. Sound measurements shall be made with the compressor authorized by Amendment 8 running at within 5% of rated horsepower. Measurements shall be made at a time when weather and atmospheric conditions are comparable in terms of sound propagation to the conditions that existed during the measurements taken pursuant to Amendment 4. NWN shall mathematically add the sound from this compressor to the sound from compressors installed prior to Amendment 8, as measured in the tests required by Amendment 4. NWN shall add instrument error to the noise measurements and shall treat instrument errors as cumulative. NWN shall promptly notify ODOE if the total from this mathematical addition exceeds the limits in Table 8 of OAR 340-035-0035. [Amendment 8]

4. Conditions Applicable to Amendment 11

   a. Prior to construction of Project components authorized by Amendment 11, the site certificate holder shall submit a written equipment design and estimated emissions report to the department, including the following information:

      (1) Manufacturer specifications for the selected natural gas-fired engine-driven compressors
      (2) Fuel consumption rate (Btu/HP-hr), based on higher heating value of fuel, and rated engine capacity (HP), based on manufacturer specifications
      (3) Engine load factor and adjusted HP
      (4) Estimated annual hours of operation (hr/yr) for both engine-driven compressors
      (5) Carbon dioxide emission calculations including: gross carbon dioxide emission rate, net carbon dioxide emission rate based on Council emission rate standard equal to 0.504 lb CO_2/HP-hr, and estimated excess carbon dioxide emissions for the assumed 30-year operational lifetime. Calculations shall be based on information provide in (1)(a) – (1)(d) of this condition and consistent with OAR 345-024-0620(1).

      [Amendment 11 Carbon Dioxide Emissions Condition 1]

   b. Following receipt of written validation by the department of monetary path payment calculations, and before beginning construction, the site

certificate holder shall remit payment to The Climate Trust in the full amount of the monetary path payment requirement as determined by the calculations set forth in Carbon Dioxide Emissions Condition 1. Monetary path payment requirements shall be calculated using an offset rate of $1.27 per ton of excess carbon dioxide emissions, adjusted from the year in which the Council issues the final order for Amendment 11, to present value dollars of the year in which payment is made to the Climate Trust. Present value shall be calculated using the US Gross Domestic Product Implicit Price Deflator, as published by the US Department of Commerce, Bureau of Economic Analysis, or any successor agency ("the index"). As part of the monetary path payment, the certificate holder shall also pay selection and contracting funds in an amount equal to 10 percent of the first $500,000 of the offset funds and 4.286 percent of any offset funds in excess of $500,000.

c. The department shall establish an "offset credit account" for Amendment 11. The initial offset credit account shall be the total carbon dioxide offsets for which the site certificate holder has provided offset funds to The Climate Trust, pursuant to Carbon Dioxide Emissions Condition 2.

d. Each year after beginning commercial operation of the North Mist Compressor Station ("annual carbon dioxide reporting period"), the site certificate holder shall report to the department the annual hours of operation (hr/yr) and annual fuel consumption (MMBtu/yr) for each of the two natural gas-fired, engine-driven compressors. The site certificate holder shall provide the annual report to the department consistent with the annual reporting date for all Mist Facility components.

    (1) The department shall calculate the excess carbon dioxide emissions during each annual carbon dioxide reporting period and subtract those emissions from the offset credit account annually.

    (2) The offset credit account shall maintain a minimum of 4,500 tons of carbon dioxide credits unless the department determines that based on the calculations conducted in (3)(a) that the balance in the carbon dioxide offset credit account is adequate to cover the estimated future emission of the NMCS over the expected 30-year life span of the NMCS. If the department determines that based on calculations conducted in (3)(a) that the offset credit account is unlikely to contain adequate credits to offset the NMCS carbon dioxide emissions over the estimated 30-year life of the NMCS, the site certificate holder shall replenish the offset credit account. The site certificate holder shall replenish the offset credit account equivalent to the full amount of the estimated future excess

emissions. The department shall estimate excess emissions for the remaining period of the deemed 30-year life of the NMCS, based on the average annual excess carbon dioxide emissions in the prior three years. The department shall calculate the estimated future excess emissions of the new compressors and notify the site certificate holder of the amount of payment required, using the monetary path offset rate as described in (c) below.

(3) For any additional future payments related to the carbon dioxide offset credit account as described in this condition, the carbon dioxide offset rate of $1.27 shall be adjusted for inflation to present value from the date the Council issues the final order for Amendment 11, using the US Gross Domestic Product Implicit Price Deflator, as published by the US Department of Commerce, Bureau of Economic Analysis, or any successor agency.

(4) The department shall calculate and the certificate holder shall pay additional contracting and selection funds to the qualified organization pursuant to Carbon Dioxide Emissions Condition 2(1).

(5) The certificate holder shall remit payment of the additional monetary path payment requirement to replenish the offset credit account to The Climate Trust or other qualified organization (as defined in OAR 345-024-0720) within 30 days after notification by the department of the amount that the certificate holder owes.

e. The two engine-driven compressors operated at the North Mist Compressor Station shall be fueled solely with pipeline quality natural gas or with synthetic gas with a carbon content per million Btu no greater than pipeline quality natural gas. The department shall use a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel to calculate carbon dioxide emissions.

[Amendment 11 Carbon Dioxide Emissions Conditions 2]

E. <u>Other Amendment-Specific Conditions</u>

1. Conditions Applicable to Amendment 4

a. Conditions for DSL Removal Fill Permit
Construction of the Project will require a Removal-Fill permit from the Department of State Lands (DSL). The Council, in consultation with DSL, approves the activities associated with the Removal-Fill permit, subject to the following conditions:

(1) NWN shall minimize impacts for the Category 2 wetland north of Highway 202 by taking steps including but not limited to:

(a) using a single trench for dual pipelines and keeping the installation as narrow as possible while remaining consistent with safety and practical installation requirements.
(b) timing construction for the dry time of year, not to extend beyond November 15.
(c) separating and returning topsoil to the trench backfill surface for pipelines and installing clay barriers at each end of the wetland crossing.
(d) avoiding the rest of the wetland crossing during construction by use of the existing road through the wetland for construction equipment. [Amendment 4]

(2) NWN shall restore habitat in the Category 2 wetland to the north of highway 202 to preconstruction conditions within two growing seasons. [Amendment 4]

(3) NWN shall minimize impact to wetlands by separating the upper foot of topsoil from the rest of the trench spoils and replacing it on the top of the trench. [Amendment 4]

(4) NWN shall filter any water pumped from the trench during construction to remove sediments before it is returned to the wetland. [Amendment 4]

(5) NWN shall complete pipeline construction through the wetland by November 15, 1997. [Amendment 4]

(6) Turbidity shall not exceed 10% above natural stream turbidities as a result of the project except that the Department of Environmental Quality allows that the 10% limit may be exceeded for a limited duration, provided all practicable erosion control measures have been implemented, including but not limited to:
(a) use of filter bags, sediment fences, catch basins or other means to prevent off site movement of soil
(b) use of impervious covers for stockpiles left unattended or during a rain event,
(c) waste materials and spoils shall be placed on uplands, such that the material cannot reenter a waterway or wetland, and
(d) all areas of soil disturbance shall be seeded or otherwise revegetated with native species upon completion of construction to prevent subsequent erosion. [Amendment 4]

b. Conditions Related to Limited Water Use Permit

(1) Construction of the Project will require a one-time use of approximately 300,000 gallons of water for pipeline testing. This use will require a Limited Water Use permit from the Water Resources Department. The water would be withdrawn from the Nehalem River. The Council approves this use, subject to the following conditions and in consultation with the Water Resources Department:

(a) The licensee shall install, maintain and operate fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. The required screens and by-pass devices are to be in place, functional and approved by an Oregon Department of Fish and Wildlife representative prior to diversion of any water. [Amendment 4]

(b) The use shall be allowed only at times when the Watermaster has determined the flows of the source stream, namely the Nehalem River, are sufficient to satisfy instream water rights. [Amendment 4]

(c) The licensee shall give notice to the Watermaster not less than 15 days or more than 60 days in advance of using the water. The notice shall include the location of the diversion and place of use, the quantity of water to be diverted and the intended use. [Amendment 4]

(d) The licensee shall maintain a record of use, including the total number of hours of pumping, an estimate of the total quantity pumped, and the categories of beneficial use to which the water is applied. The record of use shall be submitted to the Watermaster upon request. [Amendment 4]

(e) The limited license is effective for use between September 15, 1997 and November 15, 1997. [Amendment 4]

c. Conditions Related to DEQ WPCF permit

Construction of the Project will require a one-time discharge of the water used for pipeline testing. The water will be discharged by land application to a pasture located near the Nehalem River and in the vicinity of the directional drilling site. This discharge requires a Water Pollution Control

Facilities (WPCF) permit from the Department of Environmental Quality (DEQ). The Council approves this activity, subject to the following conditions and in consultation with DEQ:

(1) No discharge to State waters is permitted. All waste water shall be distributed on land for dissipation by evapotranspiration and controlled seepage by following sound irrigation practices so as to prevent:

(a) Prolonged ponding of waste on the ground surface;

(b) Surface runoff or subsurface drainage through drainage tile;

(c) Creation of odors, fly and mosquito breeding and other nuisance conditions, and

(d) The overloading of land with nutrients or organics. [Amendment 4]

(2) NWN 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 the permit. [Amendment 4]

(3) Prior to land disposal of the waste water it shall be treated by filtering through straw bales. [Amendment 4]

(4) Unless approved by EFSC and DEQ, waste water that is disposed of on land but not used to irrigate crops shall be disposed of on a deep-rooted cover crop to ensure maximum infiltration and evapotranspiration rate. [Amendment 4]

(5) Prior to constructing or modifying any waste water control facilities, detailed plans and specifications shall be approved in writing by EFSC and DEQ. [Amendment 4]

(6) An adequate contingency plan for prevention and handling of spills and unplanned discharges shall be in force at all times. A program of employee orientation and education shall be maintained to ensure awareness of the necessity for good inplant control and proper action in the event of a spill or accident. [Amendment 4]

2. Conditions Applicable to Amendment 8

a. Condition under OAR 345 Division 27

(1) NWN must decommission the new equipment and portion of the facility described in Amendment 8 and restore the site to a useful and non-hazardous condition as provided in OAR 345-022-0010 and the retirement plan previously described in the Order Approving Amendment 4. In addition, immediately upon execution of Amendment 8 to the Site Certificate, NWN must provide EFSC with a surety bond or other form of financial assurance, which shall guarantee NWN's obligation and indemnify the state from any failure by NWN to decommission the new equipment and portion of the facility described in Amendment 8 and restore the site to a useful and non-hazardous condition as provided in OAR 345-022-0010 and the retirement plan previously described in the order approving Amendment 4 to the Site Certificate. The Council delegates authority for approval of the bond to the Council chair. The amount of the bond or financial assurance must be $400,000 in 2001 dollars. 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"). If, at any time, the index is no longer published, the Council will select a comparable replacement index. [Amendment 8] [OAR 345-027-0020(8)]

b. Conditions under OAR 345 Division 24

(1) Immediately upon execution of Site Certificate Amendment 8 authorizing the compressor described in NWN's Request for Amendment 8 ("new compressor"), NWN shall report to EFSC the design and operating parameters of the new compressor, as specified in subsections (a) through (c).

(a) NWN shall notify the Council in writing of its final selection of a gas turbine compressor vendor. [Amendment 8]

(b) NWN shall submit written design information sufficient to verify the new compressor's designed heat rate (higher heating value) and its nominal capacity. NWN shall include an affidavit certifying the heat rate and nominal capacity of the new compressor. [Amendment 8]

(c) NWN shall specify the estimated annual average hours that it reasonably expects to operate the new compressor. [Amendment 8]

(2) NWN shall submit all monetary path payment requirement calculations to the Department of Energy ("department") for verification in a timely manner prior to making payments to The Climate Trust. NWN shall use the contracted design parameters for nominal capacity and heat rate of the new compressor, along with the estimated annual hours of operation, that it reports pursuant to Condition (1) to calculate the estimated monetary path payment requirement. For the purposes of this Site Certificate, the "monetary path payment requirement" means the offset funds determined pursuant to OAR 345-024-0630 and the selection and contracting funds that NWN must disburse to The Climate Trust, as the qualified organization, pursuant to OAR 345-024-0710 and this Site Certificate. [Amendment 8]

(a) The net carbon dioxide emissions rate for the new compressor shall not exceed 0.522 pounds of carbon dioxide per horsepower hour. [Amendment 8]

(b) The offset fund rate for the monetary path payment requirement shall be $0.85 per ton of carbon dioxide (in 2001 dollars). For the initial monetary path payment that NWN must make prior to beginning construction, the calculation of 2001 dollars shall he made using the US Gross Domestic Product Implicit Price Deflator, as published by the US Department of Commerce, Bureau of Economic Analysis, or any successor agency ("the index"). The amount of the payment requirement shall increase annually by the percentage increase in the index and shall be pro-rated within the year to the date of disbursement to The Climate Trust from October 26, 2001. If at any time the index is no longer published, the Council shall select a comparable calculation of 2001 dollars. [Amendment 8]

(c) NWN shall offset excess carbon dioxide emissions using the monetary path as described in OAR 345-024-0710 and this Site Certificate. Contracting and selecting funds shall equal twenty (20) percent of the value of any offset funds up to the first $250,000 (in 2001 dollars) and 4.286 percent of the value of any offset funds in excess of $250,000 (in 2001 dollars). [Amendment 8]

(3) Immediately upon execution of this Site Certificate Amendment 8, NWN shall pay cash to The Climate Trust in the full amount of the monetary path payment requirement (in 2001 dollars) as determined by the calculations set forth in Condition (2). [Amendment 8]

(4) The department shall establish an "offset credit account." The initial offset credit account shall be the total carbon dioxide offsets for which NWN has provided offset funds to The Climate Trust, pursuant to Condition (3). [Amendment 8]

(5) Each year after beginning commercial operation of the new compressor ("annual carbon dioxide reporting period"), NWN shall report to the department the annual hours the new compressor operated and its fuel use in Btu. NWN shall provide the annual report to the department within 30 days of the anniversary date of beginning commercial operation of the new compressor. [Amendment 8]

(a) The department shall calculate the excess carbon dioxide emissions during each annual carbon dioxide reporting period and subtract those emissions from the offset credit account annually. [Amendment 8]

(b) If the offset credit account contains fewer than 6,000 tons of carbon dioxide offset credits, NWN shall replenish the offset credit account. NWN shall replenish the offset credit account equivalent to the full amount of the estimated future excess emissions. The department shall estimate excess emissions for the remaining period of the deemed 30-year life of the facility, based on the average annual excess carbon dioxide emissions in the prior three years. The department shall calculate the estimated future excess emissions of the new compressor and notify NWN of the amount of payment required, using the monetary path, to replenish the offset credit account. [Amendments 8, 9]

(c) Notwithstanding the index identified in Condition (2)(b), pursuant to OAR 345-024-0710(6)(a) the formula to calculate the rate for the dollar value per ton of carbon dioxide offsets by which NWN shall replenish its offset credit account through the monetary path shall be $0.85 times (1.0891 to the power "t"); where "t" is the elapsed time in years between October

26, 2001, and the date the Office notifies NWN that it must replenish its offset credit account, pursuant of OAR 345-024-0630(4). Fractional years shall be calculated by dividing the number of elapsed days in excess of a whole year by 365. [Amendment 8]

(d) The department shall calculate additional contracting and selection funds pursuant to Condition 2(c).

(e) NWN shall disburse in cash the additional monetary path payment requirement to replenish the offset credit account to The Climate Trust within 30 days after notification by the department of the amount that NWN owes. [Amendment 8]

(6) The new gas turbine compressor shall be fueled solely with pipeline quality natural gas or with synthetic gas with a carbon content per million Btu no greater than pipeline quality natural gas. The department shall use a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel to calculate carbon dioxide emissions. [Amendment 8]

3. Conditions Applicable to Amendment 9

a. Condition under OAR 345 Division 27

(1) Before beginning the construction authorized under Amendment 9, NWN shall submit to the State of Oregon, through the Council, a bond or letter of credit, satisfactory to the Council, in the amount of $500,000 in 2003 dollars. This condition may be satisfied by a new financial instrument or by updating the bond submitted pursuant to Amendment 8. [Amendment 9]

4. Conditions Applicable to Amendment 11

a. Conditions for DSL Removal Fill Permit

(1) Prior to construction of the Amendment 11 components, the certificate holder shall submit to the department and DSL the final Site Rehabilitation of Temporary Impacts Plan consistent with the draft plan provided in Attachment G of this order. The certificate holder shall obtain written concurrence from the department and DSL that the final plan demonstrates compliance with and is consistent with all applicable rules and requirements. If the department and DSL have not provided a response within 30 days

following the site certificate holder's submission of the final Site Rehabilitation of Temporary Impacts Plan, the Plan will be considered approved. [Amendment 11 Removal-Fill Condition 1]

(2) During operation of the Amendment 11 components, the certificate holder shall monitor temporarily impacted and restored wetland sites for three years following the year of construction completion. Annual monitoring shall occur during the growing season and shall include visual surveys to estimate the coverage area of native versus nonnative species. The certificate holder shall provide an annual report with the methodology and results of the surveys on an annual basis to USACE, DSL, and the department. [Amendment 11 Removal-Fill Condition 2]

(3) Before beginning construction of the Amendment 11 components, the certificate holder must obtain and provide proof to the department that a removal-fill permit from DSL was obtained and that it includes the conditions recommended in Attachment H of the final order. The certificate holder must comply with all conditions of the removal-fill permit. [Amendment 11 Removal-Fill Condition 3]

b. Conditions Related to Limited Water Use Permit – Amendment 11 and Amendment 12 (LL-1575, LL-1576 and LL-1709)

(1) The use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate and shall be subordinate to all other authorized uses that rely upon the same source. (LL-1575 and LL-1576 Condition 5, LL-1709 Condition 6)

(2) The certificate holder shall give notice to the Department and the Watermaster in the district where use is to occur ~~at least~~not less than 15 days or more than 60 days in advance of using water under the limited water use licenses. The notice shall include the location of the diversion, the quantity of water to be diverted and the intended use and place of use. (LL-1575 and LL-1576 Condition 2, LL-1709 Condition 3)

(3) Before water use may begin under LL-1575, LL-1576 and LL-1709, the certificate holder shall install a totalizing flow meter at each point of diversion. The totalizing flow meter must be installed and maintained in good working order. In addition, the certificate holder ~~and~~ shall maintain a record of all water use, including the

total number of hours of pumping, the total quantity pumped, ~~period of use,~~ and the categories of beneficial use to which the water is applied. During the period of the license, the record of use shall be submitted to the Department and Oregon Department of Water Resources within 90-days of completion of use from the point of diversion, ~~The record of use~~ and shall be supplied to the Watermaster on request. (LL-1575 and LL-1576 Condition 3, LL-1709 Condition 4)

(4) The period rate and volume of use for LL-1575 shall be from June 1, 2017, through November 30, 2018, for the use of 2,000 gallons per minute, up to 4.46 million gallons total from Beaver Slough, for the purpose of hydrostatic testing of new pipeline, and drilling fluid for horizontal direction drilling. ~~Both licenses are effective for the requested use between June 1, 2017 and November 30, 2018. Upon completion of the Project, the certificate holder shall submit the record of use to the OWRD and the department.~~ (LL-1575 Condition 1)

~~(4)~~(5) The period rate and volume of use for LL-1709 shall be from August 18, 2017, through November 30, 2017, for the use of 2,000 gallons per minute, up to 300,000 gallons total from Beaver Slough located at the NE ¼, NE ¼, Section 21, Township 8 North, Range 4 West, W.M., for horizontal direction drilling and dust abatement. (LL-1709 Condition 1)

(6) LL-1709 is not intended to authorize additional water withdrawal beyond that already allowed under LL-1575, and therefore contributes no additional impact to the water source. The use of water under LL-1709, or, in combination with license LL-1575, shall not exceed 2,000 gallons per minute, or up to 300,000 gallons of the total 4.46 million gallons allowed under LL-1575. (LL-1709 Condition 2)

~~(5)~~(7)The period rate and volume of use for LL-1576 shall be from June 1, 2017, through November 30, 2018, for the use of 2,000 gallons per minute, up to 2.2 million gallons total from Bradbury Slough, for the purpose of hydrostatic testing of new pipeline, and drilling fluid for horizontal direction drilling. (LL-1576 Condition 1)

(8) For LL-1575 and LL-1576, the certificate holder shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. Fish screens shall be installed

consistent with the fish screening criteria provided as Attachment D to the site certificate. (LL-1575 and LL-1576 Condition 6) ~~At the Beaver Slough and Bradbury Slough outtakes, certificate holder shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the diversion.an ODFW-approved fish screen on the suction hose.~~

(9) For LL-1709, the certificate holder shall install, use, and maintain fish screening and by-pass devices as required by the Oregon Department of Fish and Wildlife to prevent fish from entering the proposed diversion. Fish screens shall be installed consistent with the fish screening criteria provided as Attachment D to the site certificate. (LL-1709 Condition 7).

(a) The certificate holder shall consult with ODFW Fish Screens and Passage Program Manager and shall provide the Department evidence of consultation prior to use under LL-1709 to demonstrate that the fish screen installed at the diversion point meets ODFW's applicable criteria.

(10) The Council may, at the request of Oregon Department of Water Resources Director, revoke the right to use water for any reason described in ORS 537.143(2), and OAR 690-340-0030(6). Such revocation may be prompted by field regulatory activities or by any other information. (LL-1575 and LL-1576 Condition 4, LL-1709 Condition 5)

(11) Use of water under a limited license shall not have priority over any water right exercised according to a permit or certificate, and shall be subordinate to all other authorized uses that rely upon the same source. (LL-1575 and LL-1576 Condition 5, LL-1709 Condition 6)

~~(6)~~(12) A copy of the licenses shall be kept at the place of use, and be available for inspection by the Department, Watermaster or other state authority. (LL-1575 and LL-1576 Condition 8, LL-1709 Condition 9)

[Amendment 11 and 12 Limited Water Use License Conditions ~~1~~]

c. Conditions under Noise Control Regulations (OAR 340, Division 35)

(1) Prior to operation of the Amendment 11 components, the certificate holder shall submit an Operational Complaint-Based

Noise Monitoring Protocol (protocol) to the department for review and approval. The protocol shall provide for testing at houses whose owners or occupants submit a complaint to EFSC or the department. The protocol shall include a schedule for completion of noise testing following complaints and when testing results will be transmitted to the department and EFSC. [Amendment 11 Noise Control Condition 1]

(2) During operation of the Amendment 11 components, public complaints received by the certificate holder of noise generated from operation of the Amendment 11 components shall be documented, responded to, and reported to the department within 72-hours of complaint receipt. NWN shall provide to the department a report summarizing the noise complaint, date complaint received, proposed noise monitoring activities, or other action deemed appropriate to respond to the noise complaint, and results (in dBA) of noise monitoring to determine compliance with the DEQ noise control regulation. [Amendment 11 Noise Control Condition 2]

VIII. SUCCESSORS AND ASSIGNS

This agreement is binding upon NWN and any co-owners, partners or joint venturers of NWN in the construction and operation of the underground storage facility and related and supporting facilities and upon any successors in interest to or assignees of either NWN or any co-owner, partner or joint venturer.

IN WITNESS WHEREOF, this Site Certificate Agreement has been executed by the State of Oregon, acting by and through its Energy Facility Siting Council, and Northwest Natural Gas Company as below subscribed on this ~~21st~~ XX day of ~~April~~August, 201~~6~~7.

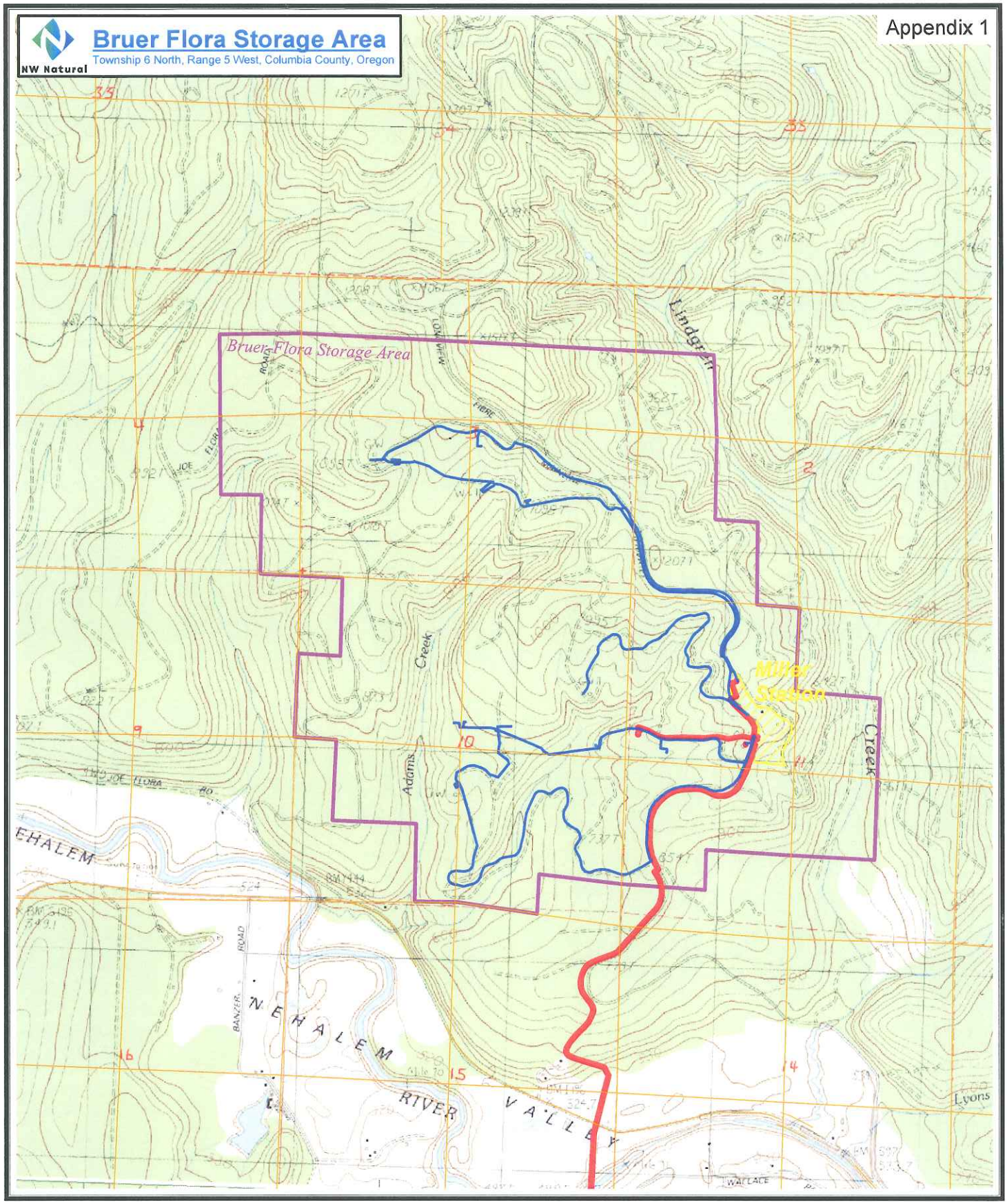
Energy Facility Siting Council

By: _____ Date: _____
Barry Beyeler, Chair

Northwest Natural Gas Company

By: _____ Date: _____
Northwest Natural Gas Company

APPENDIX 1: Map of Bruer-Flora Storage Area and Miller Station
APPENDIX 2: Map of Calvin Creek Storage Area
APPENDIX 3: Map of North Mist Expansion Project Area
APPENDIX 4: Oregon Department of Fish and Wildlife Fish Screen Criteria, Section 11 of "Anadromous Salmonid Passage Facility Design," NMFS July 2011.



Plot Date: January 22,2008

Bruer Flora Storage Area Boundary
200' Study Corridors
Existing Pipelines

1,000 500 0 1,000 2,000 3,000 4,000 Feet

0.25 0.125 0 0.25 0.5 0.75 1 Miles

N

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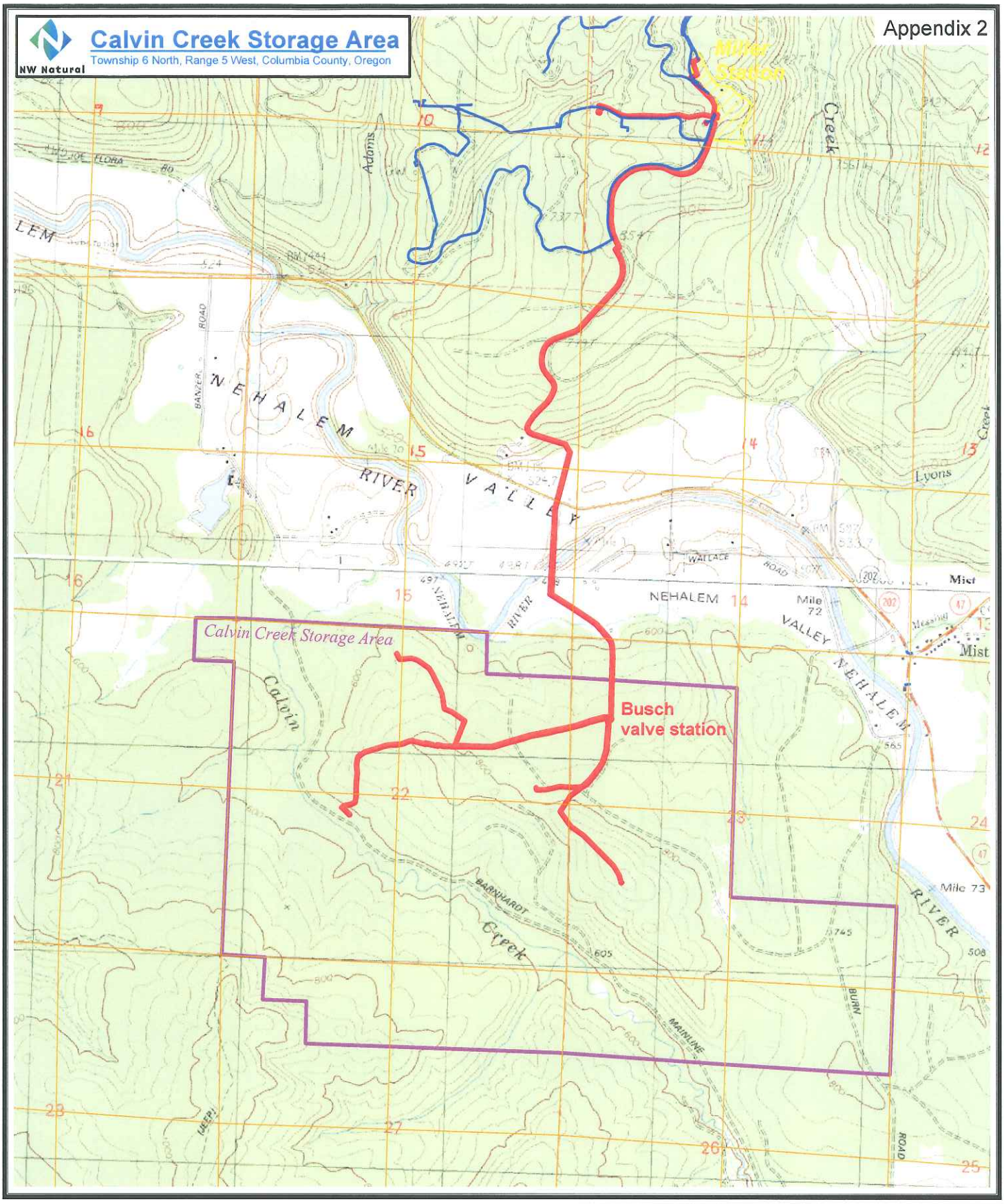

Plot Date: January 22,2008

Calvin Creek Storage Area Boundary
200' Study Corridors
Existing Pipelines

1,000 500 0 1,000 2,000 3,000 4,000 Feet

0.25 0.125 0 0.25 0.5 0.75 1 Miles

N

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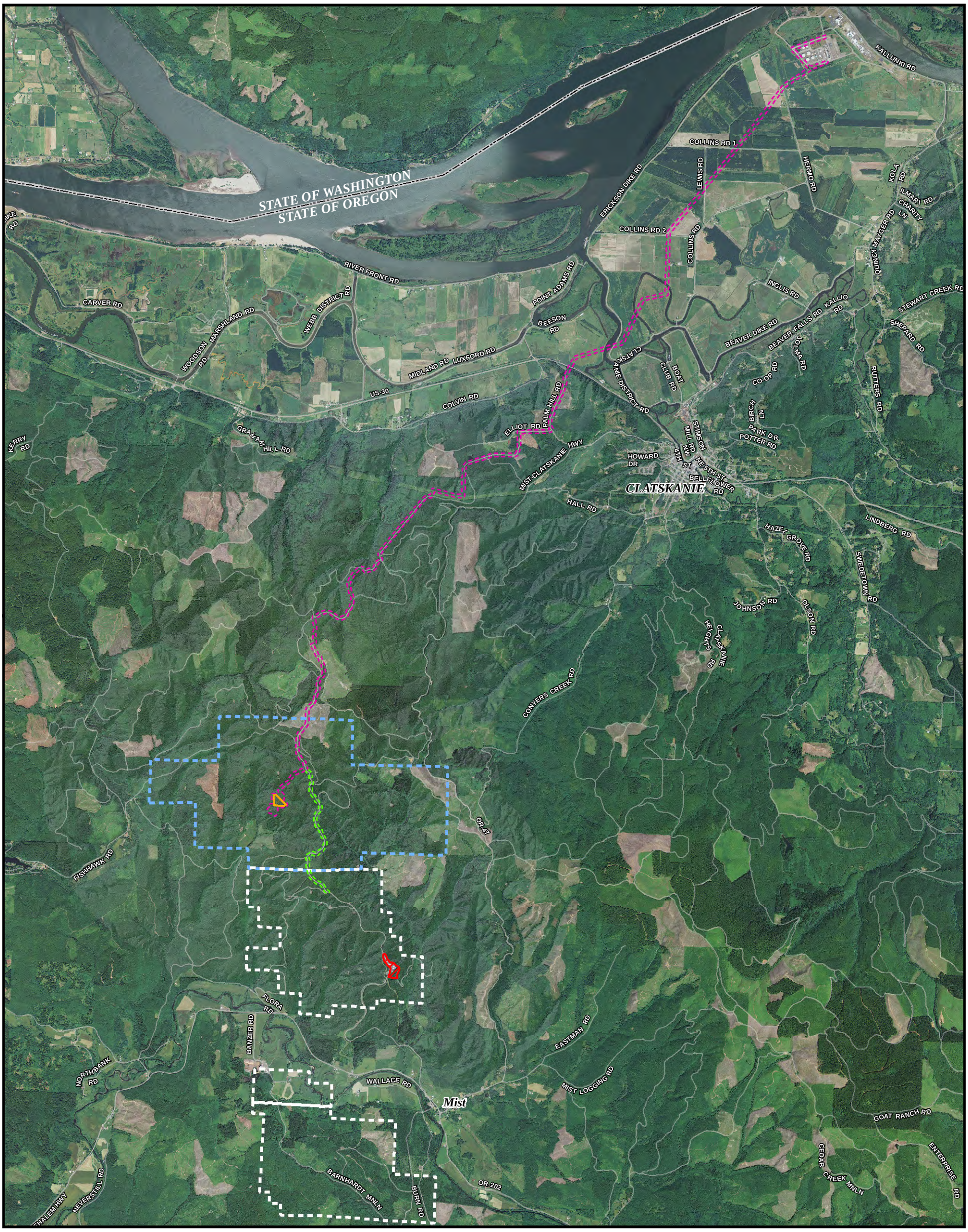


NW Natural

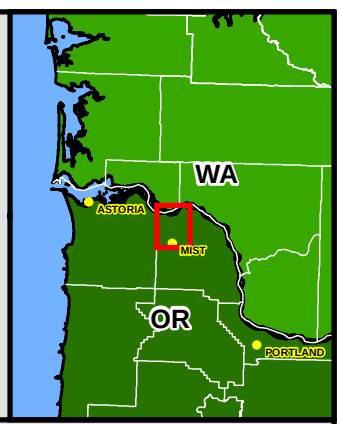
North Mist Expansion Project

Amendment No. 11

Columbia County, OR
April 2016

Appendix 3

- 40 foot Wide North Mist Transmission Pipeline Corridor
- 40 foot Wide Conduit Corridor
- Approved EFSC Site Boundary
- Approved North Mist Expansion EFSC Site Boundary
- North Mist Compressor Station
- Miller Station
- State Boundary



NAD_1927_StatePlane_Oregon_North_FIPS_3601

0 0.5 1 2 3 4 Miles

Data Source: NW Natural North Mist Expansion Project

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11. FISH SCREEN AND BYPASS FACILITIES

11.1 Introduction – Fish Screen and Bypass Facilities

This section provides criteria and guidelines to be used in the development of designs of downstream migrant fish screen facilities for hydroelectric, irrigation, and other water withdrawal projects. The design guidance provided in this section applies to *fishway* designs after a decision to provide a passage facility has been made. Unless directly specified herein, this guidance is not intended for use in evaluation of existing facilities, nor does it provide guidance on the application of the design for any particular site. Sections 1, 2, 3, and the Foreword of this document also apply to the guidelines and criteria listed in this section.

In designing an effective fish screen facility, the swimming ability of the fish is a primary consideration. Research has shown that swimming ability of fish varies and may depend upon a number of factors relating to the physiology of the fish, including species, size, duration of swimming time required, behavioral aspects, migrational stage, physical condition and others, in addition to water quality parameters such as dissolved oxygen concentrations, water temperature, lighting conditions, and others. For this reason, screen criteria must be expressed in general terms.

Several categories of screen designs are in use but are still considered as experimental technology by NMFS. These include Eicher screens, modular inclined screens, coanda screens, and horizontal screens. The process to evaluate experimental technology is described in Section 16. Several of these experimental screen types have completed part or all of the experimental technology process, and may be used in specific instances when site conditions allow. Design of these screens, or new conceptual types of experimental screens, may be developed through discussions with NMFS engineers on a case-by-case basis.

Criteria are specific standards for fishway design, maintenance, or operation that cannot be changed without a written waiver from NMFS. For the purposes of this document, a criterion is preceded by the word “must.” In general, a specific criterion can not be changed unless there is site-specific biological rationale for doing so. An example of biological rationale that could lead to criterion waiver is a determination or confirmation by NMFS biologists that the smallest fry-sized fish will likely not be present at a proposed screen site. Therefore, the juvenile fish screen approach velocity criterion of 0.4 ft/s could be increased to match the smallest life stage expected at the screen site. A guideline is a range of values or a specific value for fishway design, maintenance or operation that may change when site-specific conditions are factored into the conceptual fishway design. For the purposes of this document guidelines are preceded by the word “should.” Guidelines should be followed in the fishway design until site-specific information indicates that a different value would provide better fish passage conditions or solve site-specific issues. An example of site-specific rationale that could lead to a modified guideline is when the maximum river depth at a site is 3 feet, as compared to the design guideline for a fishway entrance depth of 6 feet. In this example, safe and

timely fish passage could be provided by modifying the guideline to match the depth in the river. It is the responsibility of the applicant to provide compelling evidence in support of any proposed waiver of criteria or modification of a guideline for NMFS approval early in the design process, well in advance of a proposed Federal action. After a decision to provide passage at a particular site has been made, the following design criteria and guidelines are applicable, in addition to those described throughout Section 3.

11.2 Functional Screen Design

A *functional screen design* should be developed that defines type, location, size, hydraulic capacity, method of operation, and other pertinent juvenile fish screen facility characteristics. In the case of applications to be submitted to FERC and for consultations under the ESA, a *functional design* for juvenile (and adult) fish passage facilities must be developed and submitted as part of the FERC License Application or as part of the Biological Assessment for the facility. It must reflect NMFS input and design criteria and be acceptable to NMFS. *Functional design* drawings must show all pertinent hydraulic information, including water surface elevations and flows through various areas of the structures. *Functional design* drawings must show general structural sizes, cross-sectional shapes, and elevations. Types of materials must be identified where they may directly affect fish. The final detailed design must be based on the *functional design*, unless changes are agreed to by NMFS.

11.3 Site Conditions

To minimize risks to anadromous fish at some locations, NMFS may require investigation (by the project sponsors) of important and poorly defined site-specific variables that are deemed critical to development of the screen and bypass design. This investigation may include factors such as fish behavioral response to hydraulic conditions, weather conditions (ice, wind, flooding, etc.), river stage/flow relationships, seasonal operational variability, potential for sediment and debris problems, resident fish populations, potential for creating predation opportunity, and other information. The life stage and size of juvenile salmonids present at a potential screen site usually is not known, and may change from year to year based on flow and temperature conditions. Thus, adequate data to describe the size-time relationship requires substantial sampling efforts over a number of years. For the purpose of designing juvenile fish screens, NMFS will assume that *fry*-sized salmonids and low water temperatures are present at all sites and apply the appropriate criteria listed below, unless adequate biological investigation proves otherwise. The burden-of-proof is the responsibility of the owner of the diversion facility.

11.4 Existing Screens

11.4.1 Acceptance Criteria and Guidelines for Existing Screens

If a fish screen was constructed prior the establishment of these criteria, but constructed to NMFS criteria established August 21, 1989, or later, approval of these screens may be considered providing that all six of the following conditions are met:

11.4.1.1 The entire screen facility must function as designed.

11.4.1.2 The entire screen facility has been maintained and is in good working condition.

11.4.1.3 When the *screen material* wears out, it must be replaced with *screen material* meeting the current criterion stated in this document. To comply with this condition, structural modifications may be required to retrofit an existing facility with new *screen material.*

11.4.1.4 No mortality, injury, entrainment, impingement, migrational delay, or other harm to anadromous fish has been noted that is being caused by the facility;

11.4.1.5 No emergent *fry* are likely to be located in the vicinity of the screen, as agreed to by NMFS biologists familiar with the site.

11.4.1.6 When biological uncertainty exists, access to the diversion site by NMFS is permitted by the diverter for verification of the above criteria.

11.5 Structure Placement

11.5.1 Specific Criteria and Guidelines – Structure Placement: Streams and Rivers

11.5.1.1 Instream Installation: Where physically practical and biologically desirable, the screen should be constructed at the point of diversion with the screen face generally parallel to river flow. However, physical factors may preclude screen construction at the diversion entrance. Among these factors are excess river gradient, potential for damage by large debris, access for maintenance, operation and repair, and potential for heavy sedimentation. For screens constructed at the bankline, the screen face must be aligned with the adjacent bankline and the bankline must be shaped to smoothly match the face of the screen structure to minimize turbulence and eddying in front, upstream, and downstream of the screen. Adverse alterations to riverine habitat must be minimized.

11.5.1.2 Canal Installation: Where installation of fish screens at the diversion entrance is not desirable or impractical, the screens may be installed in the canal downstream of the entrance at a suitable location. All screens installed downstream from the diversion entrance must be provided with an effective *bypass system*, as described in Sections 11.9 through 11.12, designed to collect and transport fish safely back to the river with minimum delay. The screen location must be chosen to minimize the effects of the diversion on instream flows by placing the bypass outfall as close as biologically feasible (i.e., considering minimizing length and optimizing the hydraulics of the bypass pipe) and practically feasible to the point of diversion.

11.5.1.3 Functionality: All screen facilities must be designed to function properly through the full range of stream hydraulic conditions as defined in Section 3 and in the diversion conveyance, and must account for debris and sedimentation conditions which may occur.

11.5.2 Specific Criteria and Guidelines – Structure Placement: Lakes, Reservoirs, and Tidal Areas

11.5.2.1 Intake Locations: Intakes must be located offshore where feasible to minimize fish contact with the facility. When possible, intakes must be located in areas with sufficient ambient velocity to minimize sediment accumulation in or around the screen and to facilitate debris removal and fish movement away from the screen face. Intakes in reservoirs should be as deep as practical, to reduce the numbers of juvenile salmonids that encounter the intake.

11.5.2.2 Surface Outlets: If a reservoir outlet is used to pass fish from a reservoir, the intake must be designed to withdraw water from the most appropriate elevation based on providing the best juvenile fish attraction and appropriate water temperature control downstream of the project. The entire range of *forebay* fluctuation must be accommodated in design. Since surface outlet designs must consider a wide spectrum of site-specific hydraulic and fish behavioral conditions, NMFS engineers and biologists must be involved in developing an acceptable conceptual design for any surface outlet fish passage system before the design proceeds.

11.6 Screen Hydraulics – Rotating Drum Screens, Vertical Screens, and Inclined Screens

11.6.1 Specific Criteria and Guidelines – Screen Hydraulics

11.6.1.1 Approach Velocity: The *approach velocity* must not exceed 0.40 ft/s for *active screens*, or 0.20 ft/s for *passive screens*. Using these approach velocities will minimize screen contact and/or impingement of juvenile fish. For screen design, *approach velocity* is calculated by dividing the maximum screened

flow amount by the vertical projection of the *effective screen area*. An exception may be made to this definition of *approach velocity* for screen where a clear egress route minimizes the potential for impingement. If this exception is approved be NMFS, the *approach velocity* is calculated using the entire *effective screen area*, and not a vertical projection. For measurement of approach velocity, see Section 15.2.

11.6.1.2 Effective Screen Area: The minimum *effective screen area* must be calculated by dividing the maximum screened flow by the allowable *approach velocity*.

11.6.1.3 Submergence: For rotating drum screens, the design submergence must not exceed 85%, nor be less than 65% of drum diameter. Submergence over 85% of the screen diameter increases the possibility of entrainment over the top of the screen (if entirely submerged), and increases the chance for impingement with subsequent entrainment if fish are caught in the narrow wedge of water above the 85% submergence mark. Submerging rotating drum screens less than 65% may reduce the self-cleaning capability of the screen. In many cases, stop logs may be installed downstream of the screens to achieve proper submergence. If stop logs are used, they should be located at least two drum diameters downstream of the back of the drum.

11.6.1.4 Flow Distribution: The screen design must provide for nearly uniform flow distribution (see Section 15.2) over the screen surface, thereby minimizing *approach velocity* over the entire screen face. The screen designer must show how uniform flow distribution is to be achieved. Providing adjustable *porosity* control on the downstream side of screens, and/or flow *training wall*s may be required. Large facilities may require hydraulic modeling to identify and correct areas of concern. Uniform flow distribution avoids localized areas of high velocity, which have the potential to impinge fish.

11.6.1.5 Screens Longer Than Six Feet:

- Screens longer than 6 feet must be angled and must have *sweeping velocity* greater than the *approach velocity*. This angle may be dictated by site-specific geometry, hydraulic, and sediment conditions. Optimally, *sweeping velocity* should be at least 0.8 ft/s and less than 3 ft/s.
- For screens longer than 6 feet, *sweeping velocity* must not decrease along the length of the screen.

11.6.1.6 Inclined Screen Face: An inclined screen face must be oriented less than 45° vertically with the screen length (upstream to downstream) oriented parallel to flow, unless the inclined screen is placed in line with riverbank and reasonably matching the slope of the riverbank.

11.6.1.7 Horizontal Screens: Horizontal screens have been evaluated as experimental technology, because they operate fundamentally different than

conventional vertically oriented screens. This fundamental difference relates directly to fish safety, because when inadequate flow depth exists with vertically oriented screens, there is no potential for fish to get trapped over the screened surface. In contrast, when water level on horizontal screens drops and most or all diverted flow goes through the screens, there is high likelihood that fish will become impinged and killed on the screened surface. In addition, if depths become shallow and flow rate is high over a horizontal screen, the resulting cross-section velocity may be too high to allow fish to swim away from the horizontal screen surface.

Unless specified differently below, general screen and bypass criteria and guidelines specified in section 11 apply for horizontal screens as well. Horizontal screens are considered biologically equivalent to conventional screens only if the following criteria and guidelines are achieved in design and operation:

11.6.1.7.1 Design Development: Since site-specific design considerations are required, NMFS engineers must be consulted throughout the development of the horizontal screen design.

11.6.1.7.2 Hydrologic and Hydraulic Analysis: The horizontal screen design process must include an analysis to verify that sufficient hydrologic and hydraulic conditions exist in the stream so as not to exacerbate a passage impediment in the stream channel (see Section 4.1), or in the off-stream conveyance, including the screen and bypass. This analysis must conclude that all criteria listed below can be achieved for the entire juvenile outmigration season, as defined by section 3. If the criteria listed below cannot be maintained per this design analysis, a horizontal screen design must not be used at the site. If this analysis concludes that removal of the bypass flow required for a horizontal screen from the stream channel results in inadequate passage conditions or unacceptable loss of riparian habitat, other screen design styles must be considered for the site and installed at the site if adverse effects are appreciably reduced.

11.6.1.7.3 Screen Geometry: Horizontal screens must be set at specific slopes and geometry consistent with prototypes approved by NMFS. The screen design must include reference material for an example prototype that confirms the adequacy of the design.

11.6.1.7.4 Site Limitation: Horizontal screens must not be installed spanning the entire width of stream or river channels, or in stream or river channels where hydraulic conditions on the screen cannot be maintained as specified below, or where the screen cannot be easily accessed for maintenance. Upstream fish passage must not be impeded by installation of a horizontal screen. In general, very few instream sites may be appropriate for installation of a horizontal screen.

11.6.1.7.5 Flow Regulation: For a horizontal screen to be installed, the site must have a good headgate, capable of maintaining sufficiently consistent diversion rates to allow a horizontal screen and bypass to operate within these criteria and guidelines.

11.6.1.7.6 Channel Alignment: Horizontal screens must be installed such that the approaching conveyance channel is completely parallel and in line with the screen channel (no skew) such that uniform flow conditions exist at the upstream edge of the screen. A straight channel should exist for at least twenty feet upstream of the leading edge of the horizontal screen, or up to two screen channel lengths if warranted by approach flow conditions in the conveyance channel. Flow conditions that require a longer approach channel include turbulent flow, supercritical hydraulic conditions, or uneven hydraulic conditions in a channel cross section. Horizontal screens must be installed such that a smooth hydraulic transition occurs from the approach channel to the screen channel (no abrupt expansion, contraction, or flow separation).

11.6.1.7.7 Bypass Flow Depth: For horizontal screens, the bypass flow must pass over the downstream end of the screen at a minimum depth of one foot.

11.6.1.7.8 Bypass Flow Amount: Bypass flow is used for transporting fish and debris across the plane of the screen and through the bypass conveyance back to the stream. Bypass flow amounts must be sufficient to continuously provide the hydraulic conditions specified in this section, and bypass conditions specified in section 11.9. In general, for diversion rates less than 100 cfs, about 15% of the total diverted flow should be used as bypass flow for horizontal screens. For diversion rates more than 100 cfs, about 10% of the total diverted flow should be used for bypass flow for horizontal screens. Small horizontal screens may require up to 50% of the total diverted flow as bypass flow. The amount of bypass flow must be approved by NMFS engineers.

11.6.1.7.9 Diversion Shut-off: If inadequate bypass flow exists at any time (per Sections 11.6.1.7.7 and 11.6.1.7.8), the horizontal screen design must include an automated means to shut off the diversion flow, or a means to route all diverted flow back to the originating stream.

11.6.1.7.10 Sediment Removal: The horizontal screen design must include means to simply and directly remove sediment accumulations under the screen, without compromising the integrity of the screen while water is being diverted.

11.6.1.7.11 Screen Approach Velocity: Screen *approach velocity* is calculated by dividing the maximum flow rate by the *effective screen area*,

and must be less than 0.25 ft/s and uniform over the entire screen surface area (see section 15.2). The horizontal screen design must include *approach velocity* and *sweeping velocity* consistent with the prototype example submitted per 11.6.1.7.3. Recent prototype development has demonstrated that better self-cleaning of a horizontal screen is achieved when the ratio of sweeping velocity and approach velocity exceeds 20:1, and *approach velocities* are less than 0.1 ft/s. If equipped with an automated mechanical screen cleaning system, screen *approach velocity* must be less than 0.4 ft/s and uniform over the entire screen surface area (see section 15.2).

11.6.1.7.12 Screen Sweeping Velocity: For horizontal screens, *sweeping velocity* must be maintained or gradually increase for the entire length of screen (see section 11.9.1.8). The design *sweeping velocity* must be consistent with the prototype example submitted per 11.6.1.7.3. Higher *sweeping velocities* may be required to achieve reliable debris removal and to keep sediment mobilized. *Sweeping velocity* should never be less than 2.5 ft/s, or an alternate minimum velocity based on an assessment of sediment load in the water diversion system.

11.6.1.7.13 Screen Cleaning: For passive horizontal screens, *approach velocity* and *sweeping velocity* must work in tandem to allow self cleaning of the entire screen face and to provide good bypass conditions. If the proposed design has not been demonstrated to have cleaning capability and hydraulic characteristics similar to a successful prototype, the screen design must include an automated screen cleaning system.

11.6.1.7.14 Inspection, Maintenance and Monitoring: Daily inspection and maintenance must occur of the screen and bypass to maintain operations consistent with these criteria. Post construction monitoring of the facility must occur for at least the first year of operation. This monitoring must occur whenever water is diverted, and include a inspection log (in table form) of date and time, water depth at the bypass, debris present on screen (including any sediment retained in the screen openings), fish observed over the screen surface, operational adjustments made, maintenance performed and the observer's name. A copy of the inspection log must be provided annually to the NMFS design reviewer, who will review operations and make recommendations for the next year of operation.

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11.7 Screen Material

11.7.1 Specific Criteria and Guidelines – Screen Material

11.7.1.1 Circular Screen Openings: Circular screen face openings must not exceed $^{3}/_{32}$ inch in diameter. Perforated plate must be smooth to the touch with openings punched through in the direction of approaching flow.

11.7.1.2 Slotted or Rectangular Screen Openings: Slotted or rectangular screen face openings must not exceed 1.75 mm (approximately $^{1}/_{16}$ inch) in the narrow direction.

11.7.1.3 Square Screen Openings: Square screen face openings must not exceed $^{3}/_{32}$ inch on a side.

11.7.1.4 Material: The *screen material* must be corrosion resistant and sufficiently durable to maintain a smooth uniform surface with long term use.

11.7.1.5 Other Components: Other components of the screen facility (such as seals) must not include gaps greater than the maximum screen opening defined above.

11.7.1.6 Open Area: The percent open area for any *screen material* must be at least 27%.

11.8 Civil Works and Structural Features

11.8.1 Specific Criteria and Guidelines – Civil Works and Structural Features

11.8.1.1 Placement of Screen Surfaces: The face of all screen surfaces must be placed flush (to the extent possible) with any adjacent screen bay, pier noses, and walls to allow fish unimpeded movement parallel to the screen face and ready access to bypass routes.

11.8.1.2 Structural Features: Structural features must be provided to protect the integrity of the fish screens from large debris, and to protect the facility from damage if overtopped by flood flows. A *trash rack*, log boom, sediment sluice, and other measures may be required.

11.8.1.3 Civil Works: The civil works must be designed in a manner that prevents undesirable hydraulic effects (such as eddies and stagnant flow zones) that may delay or injure fish or provide predator habitat or predator access.

11.9 Bypass Facilities

11.9.1 Specific Criteria and Guidelines – Bypass Layout

11.9.1.1 Bypass Location:

- The screen and bypass must work in tandem to move out-migrating salmonids (including downstream migrant adult salmonids such as

steelhead *kelts*, if present) to the bypass outfall with a minimum of injury or delay.

- The bypass entrance must be located so that it may easily be located by out-migrants.
- The bypass entrance and all components of the *bypass system* must be of sufficient size and hydraulic capacity to minimize the potential for debris blockage.
- Screens greater than or equal to 6 feet in length must be constructed with the downstream end of the screen terminating at a bypass entrance. Screens less than or equal to 6 feet in length may be constructed perpendicular to flow with a bypass entrance at either or both ends of the screen, or may be constructed at an angle to flow, with the downstream end terminating at the bypass entrance.
- Some screen systems do not require a bypass system. For example, an end of pipe screen located in a river, lake, or reservoir does not require a bypass system because fish are not removed from their habitat. A second example is a river bank screen with sufficient hydraulic conditions to move fish past the screen face.

11.9.1.2 Multiple Entrances: Multiple bypass entrances should be used if the *sweeping velocity* may not move fish to the bypass within 60 seconds, assuming fish are transported along the length of the screen face at a rate equaling *sweeping velocity*.

11.9.1.3 Training Wall: A *training wall* must be located at an angle to the screen face, with the bypass entrance at the apex and downstream-most point. For many facilities, the wall of the civil works opposite to the screen face may serve as a *training wall*. For single or multiple *vee screen* configurations, *training wall*s are not required, unless an intermediate bypass must be used.

11.9.1.4 Secondary Screen: In cases where there is insufficient flow available to satisfy hydraulic requirements at the bypass entrance for the primary screens, a secondary screen may be required within the primary bypass. The secondary *bypass flow* conveys fish to the bypass outfall location or other destination, and returns secondary screened flow for water use.

11.9.1.5 Bypass Access: Access for inspection and debris removal must be provided at locations in the *bypass system* where debris accumulations may occur.

11.9.1.6 Trash Racks: If *trash racks* are used, sufficient hydraulic gradient must be provided to route juvenile fish from between the *trash rack* and screens to the bypass.

11.9.1.7 Canal Dewatering: The floor of the screen civil works must be designed to allow fish to be routed back to the river safely when the canal is dewatered. This may entail using a small gate and drain pipe, or similar

provisions, to drain all flow and fish back to the river. If this cannot be accomplished, an acceptable fish salvage plan must be developed in consultation with NMFS and included in the operation and maintenance plan.

11.9.1.8 Bypass Channel Velocity: To ensure that fish move quickly through the bypass channel (i.e., the conveyance from the terminus of the screen to the bypass pipe), the rate of increase in velocity between any two points in the bypass channel should not decrease and should not exceed 0.2 ft/s per foot of travel.

11.9.1.9 Natural Channels: Natural channels may be used as a bypass upon approval by NMFS engineers. A consideration for utilizing natural channels as a bypass is the provision of off-stream habitat. Requirements for natural channels include adequate depth and velocity, sufficient flow volume, protection from predation, and good water quality.

11.9.2 Specific Criteria and Guidelines – Bypass Entrance

11.9.2.1 Flow Control: Each bypass entrance must be provided with independent flow-control capability.

11.9.2.2. Minimum Velocity: The minimum bypass entrance flow velocity should be greater than 110% of the maximum canal velocity upstream of the bypass entrance. At no point must flow decelerate along the screen face or in the bypass channel. *Bypass flow* amounts should be of sufficient quantity to ensure these hydraulic conditions are achieved for all operations throughout the *smolt* out-migration period.

11.9.2.3 Lighting: Ambient lighting conditions must be included upstream of the bypass entrance and should extend to the *bypass flow* control device. Where lighting transitions cannot be avoided, they should be gradual, or should occur at a point in the *bypass system* where fish cannot escape the bypass and return to the canal (i.e., when bypass velocity exceeds swimming ability).

11.9.2.4 Dimensions: For diversions greater than 3 cfs, the bypass entrance must extend from the floor to the canal water surface, and should be a minimum of 18 inches wide. For diversions of 3 cfs or less, the bypass entrance must be a minimum of 12 inches wide. In any case, the bypass entrance must be sized to accommodate the entire range of *bypass flow*, utilizing the criteria and guidelines listed throughout Section 11.9.

11.9.2.5 Weirs: For diversions greater than 25 cfs, *weir*s used in *bypass system*s should maintain a *weir* depth of at least 1 foot throughout the *smolt* out-migration period.

11.9.3 Specific Criteria and Guidelines – Bypass Conduit and System Design

11.9.3.1 General: Bypass pipes and joints must have smooth surfaces to provide conditions that minimize turbulence, the risk of catching debris, and the potential for fish injury. Pipe joints may be subject to inspection and approval by NMFS prior to implementation of the bypass. Every effort should be made to minimize the length of the bypass pipe, while maintaining hydraulic criteria listed below.

11.9.3.2 Bypass Flow Transitions: Fish should not be pumped within the bypass system. Fish must not be allowed to free-fall within a pipe or other enclosed conduit in a bypass system. Downwells must be designed with a free water surface, and designed for safe and timely fish passage by proper consideration of turbulence, geometry, and alignment.

11.9.3.3 Flows and Pressure: In general, *bypass flow*s in any type of conveyance structure should be open channel. If required by site conditions, pressures in the bypass pipe must be equal to or above atmospheric pressures. Pressurized to non-pressurized (or vice-versa) transitions should be avoided within the pipe. Bypass pipes must be designed to allow trapped air to escape.

11.9.3.4 Bends: Bends should be avoided in the layout of bypass pipes due to the potential for debris clogging and turbulence. The ratio of bypass pipe center-line radius of curvature to pipe diameter (R/D) must be greater than or equal to 5. Greater R/D may be required for super-critical velocities (see Section 11.9.3.8).

11.9.3.5 Access: Bypass pipes or open channels must be designed to minimize debris clogging and sediment deposition and to facilitate inspection and cleaning as necessary. Long bypass designs (eg. greater than 150 feet) may include access ports provided at appropriate spacing to allow for detection and removal of debris. Alternate means of providing for bypass pipe inspection and debris removal may be acceptable as well.

11.9.3.6 Diameter/Geometry: The bypass pipe diameter or open channel bypass geometry should generally be a function of the *bypass flow* and slope, and should be chosen based on achieving the velocity and depth criteria in Sections 11.9.3.8 and 11.9.3.9.

Table 11-1 provides examples for selecting the diameter of a bypass pipe based on diverted flow amount, assuming 1) bypass pipe slope of 1.3%; 2) Manning's roughness of 0.009; and 3) other bypass pipe criteria (Section 11.9) are met. Bypass pipe hydraulics should be calculated for a given design to determine a suitable pipe diameter if the design deviates from the assumptions used to calculate pipe diameters in Table 11-1.

Table 11-1. Bypass Design Examples

Diverted Flow (cfs)	***Bypass flow* (cfs)**	**Bypass Pipe Diameter (in)**	***Bypass flow* Depth (in)**
< 6	5% of diverted flow	10	2 ½
6 - 25	5% of diverted flow	10	4
40	2.00	12	4 ¾
75	3.75	15	6
125	6.25	18	7 ¼
175	8.75	21	8 ½
250	12.5	24	9 ½
500	25.0	30	12
750	37.5	36	14
> 1000	design with direct NMFS engineering involvement		

11.9.3.7 Flow: Design *bypass flow* should be about 5% of the total diverted flow amount, unless otherwise approved by NMFS. Regardless of the *bypass flow* amount, hydraulic guidelines and criteria in Sections 11.9.3.8 and 11.9.3.9 apply.

11.9.3.8 Velocity: The design bypass pipe velocity should be between 6 and 12 ft/s for the entire operational range. If higher velocities are approved, special attention to pipe and joint smoothness must be demonstrated by the design. To reduce silt and sand accumulation in the bypass pipe, pipe velocity must not be less than 2 ft/s.

11.9.3.9 Depth: The design minimum depth of free surface flow in a bypass pipe should be at least 40% of the bypass pipe diameter, unless otherwise approved by NMFS.

11.9.3.10 Closure Valves: Closure valves of any type should not be used within the bypass pipe unless specifically approved based on demonstrated fish safety.

11.9.3.11 Sampling Facilities: Sampling facilities installed in the bypass conduit must not in any way impair operation of the facility during non-sampling operations.

11.9.3.12 Hydraulic Jump: There should not be a hydraulic jump within the pipe.

11.9.3.13 Spillways: Spillways upstream of the screen facility also act as a *bypass system*. These facilities should also be designed to provide a safe passage route back to the stream, adhering to the bypass design principles described throughout Section 11.9

11.9.4 Specific Criteria and Guidelines – Bypass Outfall

11.9.4.1 Location:

- Bypass outfalls must be located to minimize predation by selecting an outfall location free of eddies, reverse flow, or known predator habitat. The point of impact for bypass outfalls should be located where ambient river velocities are greater than 4.0 ft/s during the *smolt* out-migration. Predator control systems may be required in areas with high avian predation potential. Bypass outfalls should be located to provide good egress conditions for downstream migrants.
- Bypass outfalls must be located where the receiving water is of sufficient depth (depending on the impact velocity and quantity of *bypass flow*) to ensure that fish injuries are avoided at all river and *bypass flow*s. The *bypass flow* must not impact the river bottom or other physical features at any stage of river flow.

11.9.4.2 Impact Velocity: Maximum bypass outfall impact velocity (i.e., the velocity of *bypass flow* entering the river) including vertical and horizontal velocity components should be less than 25.0 ft/s.

11.9.4.3 Discharge and Attraction of Adult Fish: The bypass outfall discharge into the receiving water must be designed to avoid attraction of adult fish thereby reducing the potential for jumping injuries and false attraction. The bypass outfall design must allow for the potential attraction of adult fish, by provision of a safe landing zone if attraction to the outfall flow can potentially occur.

11.10 Debris Management

11.10.1 Specific Criteria and Guidelines – Debris Management

11.10.1.1 Inspection and Maintenance: A reliable, ongoing inspection, preventative maintenance, and repair program is necessary to ensure facilities are kept free of debris and that screen media, seals, drive units, and other components are functioning correctly during the outmigration period. A written plan should be completed and submitted for approval with the screen design.

11.10.1.2 Screen Cleaning (Active Screens): *Active screens* must be automatically cleaned to prevent accumulation of debris. The screen cleaner design should allow for complete debris removal at least every 5 minutes, and operated as required to prevent accumulation of debris. The head differential to trigger screen cleaning for intermittent type cleaning systems must be a maximum

of 0.1 feet over clean screen conditions or as agreed to by NMFS. A variable timing interval trigger must also be used for intermittent type cleaning systems as the primary trigger for a cleaning cycle. The cleaning system and protocol must be effective, reliable, and satisfactory to NMFS.

11.10.1.3 Passive Screens: A *passive screen* should only be used when all of the following criteria are met:

- The site is not suitable for an *active screen*, due to adverse site conditions.
- Uniform approach velocity conditions must exist at the screen face, as demonstrated by laboratory analysis or field verification.
- The debris load must be low.
- The combined rate of flow at the diversion site must be less than 3 cfs.
- Sufficient ambient river velocity must exist to carry debris away from the screen face.
- A maintenance program must be approved by NMFS and implemented by the water user.
- The screen must be frequently inspected with debris accumulations removed, as site conditions dictate.
- Sufficient stream depth must exist at the screen site to provide for a water column of at least one screen radius around the screen face.
- The screen must be designed to allow easy removal for maintenance, and to protect from flooding.

11.10.1.4 Intakes: Intakes must include a *trash rack* in the screen facility design which must be kept free of debris. In certain cases, a satisfactory profile bar screen design may substitute for a *trash rack*. Based on biological requirements at the screen site, *trash rack* spacing may be specified that reduces the probability of entraining adult fish.

11.10.1.5 Inspection: The completed screen and bypass facility must be made available for inspection by NMFS, to verify that the screen is being operated consistent with the design criteria.

11.10.1.6 Evaluation: At some sites, screen and bypass facilities may be evaluated for biological effectiveness and to verify that hydraulic design objectives are achieved. At the discretion of NMFS, this may entail a complete biological evaluation especially if waivers to screen and bypass criteria are granted, or merely a visual inspection of the operation if screen and bypass criteria is met in total.

11.10.1.7 Sediment: Provision must be made to limit the build-up of sediment, where it may impact screen operations.

11.11 End of Pipe Screens (including pump intake screens)

11.11.1 Specific Criteria and Guidelines – End of Pipe Screens

11.11.1.1 Location: *End of pipe screens* must be placed in locations with sufficient ambient velocity to sweep away debris removed from the screen face, or designed in a manner to prevent debris re-impingement and provide for debris removal.

11.11.1.2 Submergence: *End of pipe screens* must be submerged to a depth of at least one screen radius below the minimum water surface, with a minimum of one screen radius clearance between screen surfaces and natural or constructed features. For *approach velocity* calculations, the entire submerged *effective screen area* may be used.

11.11.1.3 Escape Route: A clear escape route should exist for fish that approach the intake volitionally or otherwise. For example, if a pump intake is located off of the river (such as in an intake lagoon), a conventional open channel screen should be placed in the intake channel or at the edge of the river to prevent fish from entering a lagoon.

Attachment B: Council Chair Approval of Expedited Review

Oregon

Kate Brown. Governor

OREGON DEPARTMENT OF ENERGY

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August 4, 2017

Mr. Michael Hayward
NW Natural Gas Company
220 NW Second Avenue
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Sent via email: Mike.Hayward@nwnatural.com; tim.mcmahan@stoel.com; DWeber.nwngs@nwnatural.com; Melissa.McGoogan@nwnatural.com; kali.turner@stoel.com; susan.hurley@tetratech.com

Re: Determination from Council Chair on Certificate Holder's Request for Expedited Review of Mist Underground Natural Gas Storage Facility Request for Amendment No. 12

Dear Mr. Hayward:

Oregon Department of Energy (ODOE) received Northwest Natural Gas Company's (certificate holder) Request for Amendment (RFA) No. 12 for the Mist Underground Natural Gas Storage Facility Site Certificate on August 3, 2017. RFA No. 12 seeks approval for a new limited-use water license to allow for limited use of water, during the horizontal directional drilling process associated with the North Mist Expansion Project, from a differing diversion point than previously approved in the limited water-use licenses obtained for the project. RFA No. 12 also includes a request to the Chair of the Energy Facility Siting Council for expedited review of RFA No. 12 pursuant to OAR 345-027-0080. If granted, expedited review of the amendment would follow the procedures described in subsections (3) through (10) of that rule. On August 3, 2017, you electronically submitted RFA No. 12 for me to consider the request for expedited amendment.

OAR 345-027-0080 describes the considerations upon which the Council Chair must determine whether to grant expedited review, as follows:

> *"The Chair may grant the request for expedited review if the Chair finds that a delay would unduly harm the certificate holder and if the facility, with the proposed change, would not likely result in a significant new adverse impact."*

After reviewing the request in light of these considerations, I make the following findings:

(1) Based on the certificate holder's representations, I find that a delay in the decision on RFA No. 12 would unduly harm the certificate holder by either resulting in significant financial loss or the risk of not completing HDD construction during the 2017 season, negatively impacting the approved construction schedule.

(2) Based on an evaluation of the RFA No. 3 materials to date, I find that a new limited-use water license authorizing use of a previously approved quantity of water from a previously approved source, but from a differing diversion point, would not be likely to result in a significant new adverse impact to a resource protected by a Council standard.

Based on these findings, I hereby grant expedited review of the Request for Amendment No. 12 of the Site Certificate for the Mist Underground Natural Gas Storage Facility. Pursuant to OAR 345-027-0080(3), ODOE will issue a public notice of the amendment request and distribute copies to reviewing agencies no later than seven days from today's date.

Sincerely,

Barry Beyeler
Chair, Energy Facility Siting Council

cc (via e-mail distribution)
Todd Cornett, Oregon Department of Energy
Maxwell Woods, Oregon Department of Energy
Sarah Esterson, Oregon Department of Energy
Jesse Ratcliffe, Oregon Department of Justice