

NORTHWEST NATURAL GAS COMPANY

APPLICATION

FOR

AMENDMENT NO. 10

TO THE

MIST UNDERGROUND NATURAL GAS

STORAGE SITE CERTIFICATE

Submitted to the

Oregon Energy Facility Siting Council

March 21, 2008

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I. INTRODUCTION

Pursuant to Oregon Administrative Rule (“OAR”) 345-027-0050, Northwest Natural (“NW Natural”) proposes to amend the Site Certificate for its underground natural gas storage facility at the Mist Site in Columbia County, Oregon. In this Request for Amendment No. 10, NW Natural seeks no substantive changes to the Site Certificate other than clarification of conditions where the applicable law has changed since the site certificate was initially approved; NW Natural requests approval of its Consolidated, Restated, and Amended Site Certificate. The Consolidated, Restated, and Amended Site Certificate consolidates the original Site Certificate and Amendments 1-9 to the Site Certificate, updates the Site Certificate to reflect the current statutory and regulatory regime, deletes outdated and superseded conditions, adds language describing the surface facilities related to the underground gas storage reservoir, updates the site maps, and eliminates inconsistencies between the various documents.

II. COUNCIL JURISDICTION

When the Energy Facility Siting Council (the “Council” or “EFSC”) approved the underground natural gas storage facility at the Mist Site in 1981, its jurisdiction included both the surface and underground components of the facility. In 1993, the siting law was amended to include 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, or require more than 4,000 horsepower of natural gas compression to operate.” ORS 469.300(11)(a)(I). The surface facility at Mist exceeds this 50-million-cubic-foot threshold and is therefore subject to Council jurisdiction. Subsurface elements are within the exclusive jurisdiction of the Department of Geology and Mineral Industries (“DOGAMI”).

The Project, as described in detail below, includes consolidating, restating, and amending the Site Certificate for the Mist Site. Although NW Natural has made no substantive changes to the Site Certificate, NW Natural seeks to amend the Site Certificate to create a more usable administrative tool.

On March 13, 1998, the Council approved a request to amend the Site Certificate by replacing the amendment provisions in the Site Certificate with requirements that future site certificate amendments be governed by the “duly adopted rules of the Energy Facility Siting Council for the amendments of the site certificates.” This Amendment No. 10 request is set forth pursuant to OAR 345-027-0060.

III. CERTIFICATE HOLDER INFORMATION (OAR 345-027-0060(1)(A))

A. Name and Mailing Address of the Certificate Holder

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

B. Name and Mailing Address of the Individual Responsible for Submitting the Request

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IV. DESCRIPTION OF THE FACILITY (OAR 345-027-0060(1)(B))

A. Nature of the Facility

NW Natural is a gas utility that delivers energy to more than 625,000 customers. Energy needs generally change significantly on a daily, monthly and seasonal basis due to changes in space-heating requirements, harvest processing, annual production cycles and other factors. In Oregon, however, gas usage is generally lowest during summer months and peaks during December, January and February. Underground gas storage provides the most efficient means of balancing relatively constant pipeline gas supplies with widely fluctuating seasonal, daily and hourly market requirements. Gas is injected into storage during off-peak periods when market requirements are less than supply availability and is withdrawn from storage when market demand exceeds available supplies from other sources. Storage reservoirs usually are replenished between April and September and are drawn down between October and March.

Underground reservoir storage requires suitable underground geological conditions in a specific geographic area. These conditions occur in depleted oil or gas pools, like the pools in the Mist Gas Field. An underground storage reservoir, reduced to simplest terms, is little more than a gas production reservoir retrofitted to inject gas back into the ground and withdraw it on a cyclical basis.

The principal differences between a natural gas production field and an underground storage reservoir are operational. The gas wells in a production field are designed to produce gas at flow rates that permit the efficient drainage of the reservoir over time. DOGAMI regulates the spacing of gas wells. Generally, no more than one well per quarter section (160 acres) is allowed. Closer well spacing could result in higher development costs with negligible increase in overall gas production. Competing wells could also cause the premature demise of a reservoir, leaving behind gas that is uneconomical to produce.

A different operating concept applies to a storage reservoir. Instead of producing the major portion of the underground gas by careful management of field pressures and auxiliary compression over a period of years, the goal changes to that of an annual fill-and-empty cycle. To rapidly fill and withdraw from a reservoir without harming it, a more closely spaced pattern of wells designed for high rates of injection and withdrawal is used for storage operations. Compressors allow the storage pressure to be restored during a six-month injection period and provide for sustained high delivery rates during withdrawal as the reservoir pressure depletes.

B. Site Selection

Underground storage facilities can be developed only in rare locations where the underground geological conditions are right. The Mist gas field (the "Mist Field") is such a place. The Mist Site, located in rural Columbia County in parts of Sections 2, 3, 4, 10, 11, 21, 22, 23, 26 and 27 of Township 6 North, Range 5 West, Willamette Meridian, is located in the Mist Field.

Millions of years ago, the present gas-producing sands in the Mist Field were laid down by a large river delta advancing into the ocean (analogous to the modern Mississippi River delta). The delta subsided and water depths increased, resulting in mud being deposited over the sand. Compaction from the weight of the material consolidated the sand and muds into sandstone and mudstone. Decomposition of the organic remains in the rock formed natural gas. Large amounts of natural gas migrated into the sandstone and accumulated in areas where the gas could be trapped and displace the water from between the sand grains, forming a "bubble." The compressed layers of clay that form the seal (caprock) over the sand prevent further vertical gas migration. Tectonic forces generated by the collision of the North American Plate with segments of the Pacific Plate created the folds and faults in the sandstone that form the compartments that trap the gas and prevent lateral migration. The fact that gas remains in these reservoirs at high pressure (up to 1,000 pounds per square inch) after millions of years demonstrates the stable nature of these reservoirs. No man-made structures have been so thoroughly tested.

C. Site Background

By the late 1970s, NW Natural had anticipated its need for natural gas storage capacity in the Portland metropolitan area. NW Natural believed the area around Mist, in rural Columbia County, Oregon, might be one of the few areas in the state containing sandstones of reservoir quality that could be used to store natural gas. These sandstone zones, surrounded by impermeable rock, are referred to as underground "reservoirs," although they are not large caverns. The small spaces between sand grains are in excess of 30 percent of the volume of the rock and can be filled with compressed natural gas. NW Natural recognized that the Mist area would be an excellent location for storage facilities to serve the region.

Reichhold Energy Company and Diamond Shamrock Exploration Company were exploring the Mist area with the hope that underground reservoirs containing commercial gas deposits would be discovered. NW Natural formed a subsidiary, ONG, to participate with those two companies in exploring the Mist area by drilling exploration wells to depths of several thousand feet below the surface. From NW Natural's perspective, simply finding a good underground reservoir, even without commercial gas deposits, would have been satisfactory. The discovery of natural gas at Mist was a bonus.

The Mist Field was discovered in April 1979. Natural gas production was established in December of that year when the first volumes of natural gas were transported to a connection with the NW Natural pipeline system about nine miles away, near Clatskanie. Subsequently, producing wells from the commercial discoveries in the Mist Field were connected by buried gathering lines to the natural gas processing equipment located at Miller Station. At Miller Station, the produced natural gas was collected, measured, treated and odorized before its

transmission to NW Natural pipelines. Since 1979, more than \$100 million worth of natural gas has been produced from numerous separate gas reservoirs in the Mist Field.

Through the 1980s and into the 1990s, gas exploration and production in the Mist Field was carried on by ONG and a variety of industry participants, including Reichhold Energy Company, Diamond Shamrock Exploration Company, ARCO Oil & Gas Company, Nahama & Weagant Energy Company and Enerfin Resources NW-LP (“Enerfin”). Gathering pipelines connecting individual production wells to Miller Station were constructed and operated by ONG until December 1995 and by Enerfin thereafter. During these same time periods, ONG and Enerfin also operated the production wells under contract with the well’s various owners.

By the early 1980s, ONG had produced most of the economically recoverable natural gas in the Bruer and Flora pools, two of the first production reservoirs at the Mist Site. In anticipation of that depletion, in 1981, ONG applied for the permits necessary to convert the Bruer and Flora pools into an underground natural gas storage facility. As explained below, the original Site Certificate authorized the Mist Site to utilize the Bruer and Flora pools in the Bruer/Flora storage area. Later amendments expanded the Mist Site to include similarly produced pools in the Calvin Creek storage area, Al’s Pool and the Reichhold Pool. Additional pools (Schlicker and Busch) in and adjacent to the Calvin Creek storage area were added under Amendment No. 9. No site boundary amendment is requested or required as a part of this Amendment No. 10 request.

D. Existing Site Certificates and Facilities

On September 30, 1981, EFSC issued a site certificate to the Oregon Natural Gas Development Corporation (“ONG”), a wholly owned subsidiary of NW Natural, for an underground natural gas storage facility near Mist, Oregon in Columbia County (the “Mist Storage Site Certificate” or the “Site Certificate”). The Site Certificate has been amended nine times.

The Site Certificate authorized ONG to construct and operate two naturally existing underground gas reservoirs (the Flora and Bruer pools); Miller Station with attendant equipment including, but not limited to, compressors, gathering lines, access roads, existing natural gas wells, monitoring wells and proposed injection/withdrawal wells,” located in rural Columbia County in parts of Sections 2, 3, 4, 10 and 11 of Township 6 North, Range 5 West, Willamette Meridian (the “Mist Site”).

In 1990, ONG assigned the Site Certificate to its parent, NW Natural. The Council approved three amendments to the Site Certificate in 1987 (Amendment No. 1), 1988 (Amendment No. 2) and 1990 (Amendment No. 3). The amendments modified several terms of the Site Certificate and authorized the construction and replacement of wells.

In 1997, the Council approved Amendment No. 4. That amendment approved an expansion of the Mist Site that increased the combined total Mist storage peak-day delivery capability from 100 million cubic feet per day (“MMcfd”) to 145 MMcfd. The expansion included (1) improvements to the Miller Station gas-processing facility, including the replacement of two older 550-horsepower compressor units with one larger, more efficient unit;

(2) total available compression of 6,650 brake horsepower (“BHP”); (3) construction of a building for the new compressor and updates to related equipment; (4) natural gas storage in one additional naturally occurring underground pool, Al’s Pool, in the Calvin Creek storage area; (5) up to four new sites for injection/withdrawal wells, including one to four wells at each site; (6) approximately one mile of buried eight-inch and six-inch gathering pipeline; and (7) approximately two and one-half miles of buried twin 16-inch transmission pipeline.

On March 13, 1998, the Council approved Amendment No. 5, which replaced the amendment provisions in the Site Certificate with a requirement that future site certificate amendments be governed by the Council’s amendment rules.

In 1999, the Council approved Amendment No. 6, increasing the capacity of the Mist storage facility. The gas storage portion of that project included (1) upgrades to the dehydration and metering systems at Miller Station; (2) natural gas storage in one additional naturally occurring underground pool, the Reichhold Pool, within the existing site boundary; (3) up to four new sites for injection/withdrawal wells, including one to four wells at each site; (4) approximately 6,500 feet of buried gathering pipeline no greater than 12 inches in diameter; and (5) the removal of the 6,650 compressor horsepower limitation currently in place for the Miller Station facility. Approval of Amendment No. 6 allowed Miller Station to operate at rates of up to 190 MMcfd without any restriction on the use of the three existing compressor units, which have a total rating of 8,200 BHP.

On May 17, 2001, the Federal Energy Regulatory Commission (“FERC”) granted NW Natural a limited jurisdiction blanket certificate under section 284.224 of FERC’s regulations. Under that certificate, NW Natural is authorized to use existing and expanded facilities at the Mist Site to provide FERC jurisdictional bundled firm and interruptible storage and related transportation services in interstate commerce. See Northwest Natural Gas Company, 95 FERC ¶ 61,242 (2001). FERC’s jurisdiction, however, extends only to the interstate services themselves. NW Natural provides the interstate storage services using existing and expanded facilities at the Mist Site that are not needed to serve its core utility customer needs. NW Natural also has agreements in place with its state utility regulators regarding this use. To make increased capacity available to the interstate market, NW Natural amended its Site Certificate (Amendment No. 7) by increasing the permitted throughput of the Mist facility to 245 MMcfd. Amendment No. 7 was approved on November 17, 2000.

In Amendment No. 8, approved October 26, 2001, the Council authorized an increase of the permitted daily throughput from 245 MMcfd to 317 MMcfd. This involved the installation of new metering facilities, new interconnect piping to the South Mist and North Mist pipelines and a new gas-turbine-driven compressor. The new compressor added 7,800 horsepower, bringing the total compression capability to 16,000 horsepower.

In Amendment No. 9, approved December 5, 2003, the Council authorized an increase of the permitted daily throughput from 317 MMcfd to 515 MMcfd. The Council also authorized the construction of improvements at Miller Station, including the installation of new dehydration facilities and gas quality and monitoring equipment. The Council also authorized NW Natural to develop related and supporting facilities associated with new underground gas storage reservoirs in the Calvin Creek storage area, the Busch and Schlicker Pools. Approval of Amendment No. 9

also allowed NW Natural to terminate the vibration monitoring program created in Amendment 1.

V. PROJECT DESCRIPTION (OAR 345-027-0060(C))

On September 30, 1981, EFSC issued a site certificate to the Oregon Natural Gas Development Corporation (“ONG”), a wholly owned subsidiary of NW Natural, for an underground natural gas storage facility near Mist, Oregon in Columbia County. The Site Certificate has been amended nine times.

Because the Site Certificate and Amendments 1-9 contain conditions applicable to the facility, NW Natural and the Oregon Department of Energy (“ODOE”) determined that it was necessary and desirable to consolidate the 10 documents into one to create a more usable administrative tool. In addition to consolidating the Site Certificate and Amendments, NW Natural resolved to update and amend the document. NW Natural and ODOE have worked collaboratively during the entire process.

NW Natural and ODOE began the process of consolidating, restating, and amending the Site Certificate by adding Amendments 1-9 to the original Site Certificate. Except for correcting minor spelling and grammatical errors, NW Natural made no changes to the text at the consolidation stage. Efforts were made to account for duplicative conditions. For example, when identical conditions appeared in more than one amendment, NW Natural listed the condition once and noted that it applied to more than one amendment. (*See, e.g.*, Exhibit A at 14.)

After consolidating the original Site Certificate and Amendments 1-9, a project team, including ODOE staff, met to review the consolidated document and to recommend changes. Although the project team did not make any substantive changes to the document,¹ the project team revised the Site Certificate to create a more usable administrative tool. The resulting Consolidated, Restated, and Amended Site Certificate Agreement for the Mist Site is attached as Exhibit A. The changes NW Natural made after consolidating the documents are set forth in Exhibit C and summarized as follows:

A. Describe the Amendments

As explained above, prior to this Request for Amendment No. 10, the original Site Certificate was amended nine times. To preserve the history of the amendments, NW Natural added a section to the Site Certificate describing Amendments 1-9. This section describes, among other things, changes to the site boundary, changes to the facility, and increases in allowed throughput. (*See* Exhibit A at 2-4.)

B. Update the Site Descriptions

¹ As described below, the project team modified certain conditions for which the applicable law has changed since the site certificate was initially approved. However, the changes do not alter the rights or responsibilities set forth in the original Site Certificate or Amendments 1-9.

The underground storage reservoirs and the surface facilities related to the underground gas storage reservoirs have changed substantially since the original Site Certificate was approved by the Council in 1981. Accordingly, NW Natural updated the site descriptions to include the underground storage reservoirs and the surface facilities related to the underground gas storage reservoirs authorized in both the original Site Certificate and Amendments 1-9. The site descriptions therefore provide a precise picture of the Mist Site as of the filing of this Request for Amendment No. 10. (See Exhibit A at 4-5.)

C. Update the Site Maps

NW Natural created two new site maps to correspond with the updated site descriptions. One map depicts the Bruer/Flora storage area and a second map depicts the Calvin Creek storage area. These new site maps show the site boundaries, as well as the location of the underground storage reservoirs. Like the site descriptions, the site maps provide a precise depiction of the Mist Site as of the filing of this Request for Amendment No. 10. (See Exhibit A at Appendix 1, Appendix 2.)

D. Update Citations to Statutes and Rules

NW Natural updated a number of citations to statutes and rules because the citations were no longer accurate or had been superseded by other laws or rules. For example, the original Site Certificate cited OAR 345 Division 100, a division that has since been repealed. Thus, to update the document, NW Natural removed the references to OAR 345 Division 100 and added references to current administrative rules. A matrix showing the statutory and regulatory citations that NW Natural updated is attached as Exhibit B.

E. Remove Superseded Conditions

A number of general conditions in the original Site Certificate were superseded by specific conditions in Amendments 1-9. For example, the general condition related to the monitoring program in the original Site Certificate was superseded by specific conditions related to monitoring in Amendment No. 4. Accordingly, NW Natural removed the superseded conditions and noted that the conditions had been superseded by specific conditions in subsequent Amendments. (See, e.g., Exhibit A at 8.)

F. Remove Conditions Related to Completed Actions

Numerous conditions in the original Site Certificate and Amendments 1-9 relate to construction-phase actions; therefore, NW Natural has fulfilled many of the listed conditions. Although NW Natural decided to retain some of the conditions related to completed actions because those conditions provide a good foundation for drafting future conditions, other conditions related to completed actions were deleted. For example, NW Natural removed the condition related to "Completeness of Construction," which stated that construction of the underground gas storage facility and related and supporting structures would be completed prior to August 31, 1987. (See, e.g., Exhibit A at 6.)

G. Revise for Consistency

After NW Natural consolidated the original Site Certificate and the Amendments, the resulting document contained a number of inconsistencies in terminology. For example, the consolidated document referred to both pipelines and gathering lines. Because there is no regulatory reason for distinguishing gathering lines from pipelines, NW Natural replaced all references to “gathering lines” with the word “pipelines.” (*See, e.g.*, Exhibit A at 19.)

VI. SPECIFIC LANGUAGE REQUESTED (OAR 345-027-0060(D))

As noted above, NW Natural proposes to consolidate, restate, and amend the original Site Certificate and Amendments 1-9 into a single Consolidated, Restated, and Amended Site Certificate. (*See* Exhibit B.) Accordingly, NW Natural proposes numerous changes to the specific language of the Site Certificate. Although the proposed changes are not substantive, Exhibit A highlights the specific language NW Natural proposes to change, add, or delete by Amendment No. 10.

VII. STANDARDS RELEVANT TO PROPOSED CHANGE (OAR 345-027-0060(e), (f))

In consultation with ODOE, it was agreed that one could argue that consolidating, restating, and amending the Site Certificate requires an amendment under OAR 345-027-0050. Accordingly, pursuant to OAR 345-027-0060, NW Natural is submitting this Request for Amendment No. 10, including the information required by OAR 345-027-0060(1). However, because NW Natural has made no substantive changes to the Site Certificate, there are no Council standards relevant to this Request for Amendment No. 10. Thus NW Natural has not provided information on applicable standards in accordance with OAR 345-027-0060(1)(e), (f).

To the extent there are changes to the Site Certificate, the Council authorized all such changes in Amendments 1-9 and found the changes to be in compliance with Council standards. Accordingly, NW Natural respectfully requests the Council to incorporate by reference the administrative records for Amendments 1-9. Because the Council addressed the substantive changes to the original Site Certificate in Amendments 1-9, the proposed Consolidated, Restated, and Amended Site Certificate complies with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules, and ordinances.

VIII. CONCLUSION

For the foregoing reasons, NW Natural respectfully requests approval of Amendment No. 10.

EXHIBITS

EXHIBIT A Consolidated, Restated and Amended Site Certificate

EXHIBIT B Matrix of Statutory and Regulatory Changes

EXHIBIT C Proposed Changes to Site Certificate

**CONSOLIDATED, RESTATED, AND AMENDED
UNDERGROUND STORAGE FACILITY**

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

March 2008

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

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Consolidated Site Certificate

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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 9 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).

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.

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

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

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.

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 include 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).

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.

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-

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."

inch pipelines begin at the Busch Valve Station and terminate at the well sites. 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 1350 HP Superior reciprocating compressors not subject to EFSC CO₂ standards.
3. One 5035 BHP Allison KC-5 turbine driven compressor installed in 1997 pursuant to Amendment 4 and not subject to EFSC CO₂ standards.
4. One 7324 BHP Allison KC-7 turbine driven compressor installed in 2001 pursuant to Amendment 8 and subject to EFSC CO₂ standards.

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

NWN Mist Gas Storage Facility
Consolidated Site Certificate

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

NWN Mist Gas Storage Facility
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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.

1. **Department of Geology and Mineral Industries:** Well drilling and other permits required by ORS Chapter 520 and OAR Chapter 632 Division 10.
2. **Department of Environmental Quality:** Air Contaminant Discharge Permit for the operation of the Mist underground storage facility.
3. **Public Utility Commissioner:** Compliance inspection of pipelines, pursuant to Title 49 CFR, Part 192 as necessary.
4. **Department of Consumer and Business Services:** Pressure vessel inspection, State Fire Marshall approvals and plan review of construction drawings.
5. **Department of Transportation:** Single trip permits for oversize or overweight loads.
6. **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

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the execution of Amendment 5, 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(2)(b). 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

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]

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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 § 192.709. [Amendment 6]
10. Pursuant to Amendment 9, the permitted daily throughput of the facility is 515 MMcfd. [Amendments 7, 8, 9]
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 to ODOE as soon as

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.

possible a written report identifying the issue and assessing the impact on the facility and any affected Site Certificate conditions. [Amendment 6]

B. Conditions related to EFSC Standards at OAR Chapter 345 Division 22

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

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]

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

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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-I of Exhibit 14 of the Application for Amendment

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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

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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 staging 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]

C. 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.

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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

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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]

D. Other Amendment-Specific Conditions

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,

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- (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 345-022-0130 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 345-022-0130 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

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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]

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 Office of Energy (“Office”) 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 be 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 Office 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 OOE the annual hours the new compressor operated and its fuel use in Btu. NWN shall provide the annual report to the Office within 30 days of the anniversary date of beginning commercial operation of the new compressor. [Amendment 8]
 - (a) The Office 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 Office 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 Office 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 $\$0.85 \text{ times } (1.0891 \text{ to the power } “t”)$; 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 Office 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 Office 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 Office 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. **Condition 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]

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 Oregon Natural Gas

NWN Mist Gas Storage Facility
Consolidated Site Certificate

Development Corporation as below subscribed on this day of (Sept. 30), 1981.

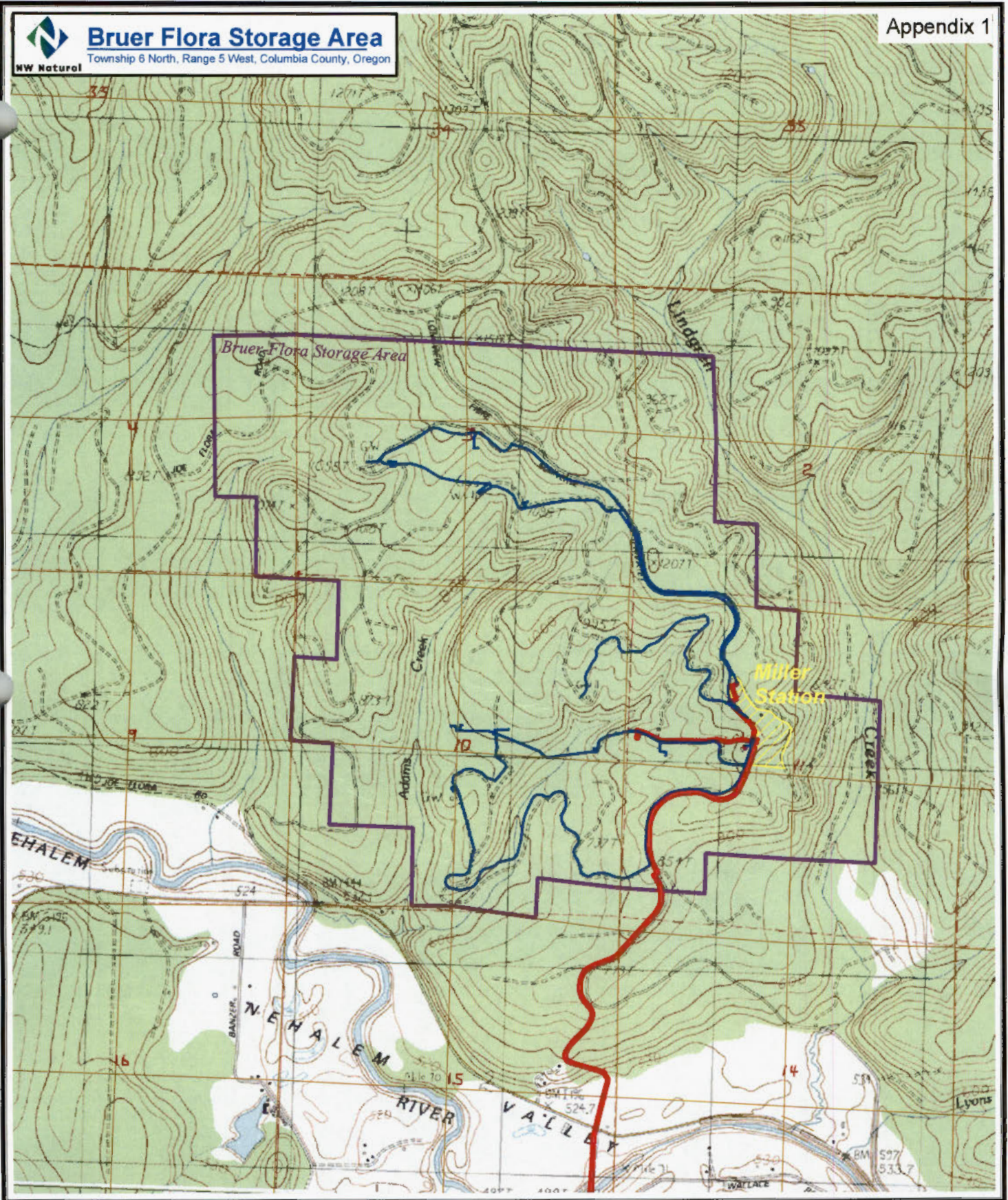
(Original signed by Raphael Wilson, Chair, Energy Facility Siting Council and Ronald T. Miller, President, Northwest Natural Gas)

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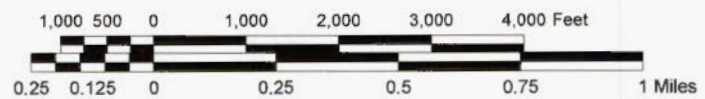
Bruer Flora Storage Area

Township 6 North, Range 5 West, Columbia County, Oregon



Plot Date: January 22, 2008

- Bruer Flora Storage Area Boundary
- 200' Study Corridors
- Existing Pipelines

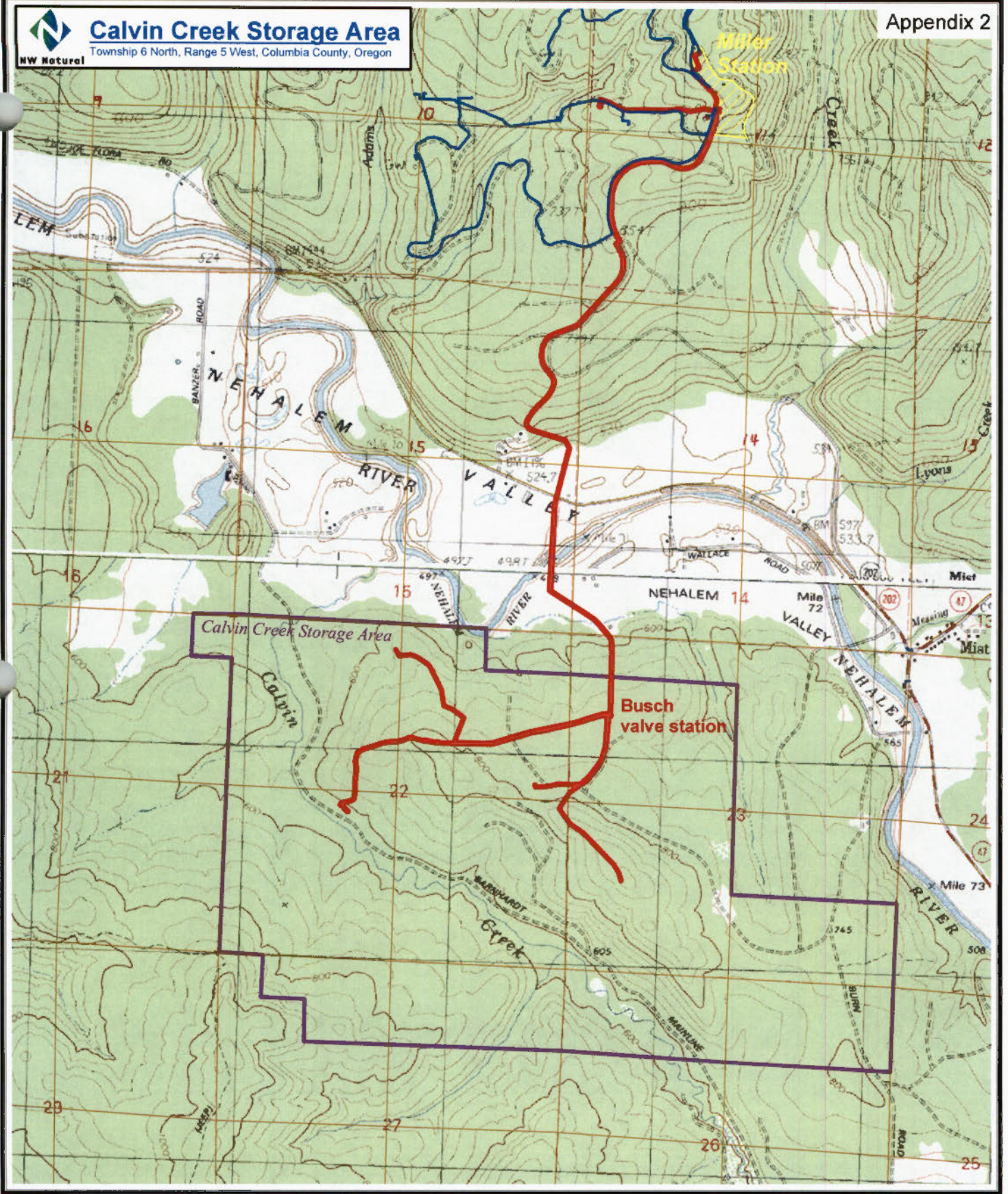




Calvin Creek Storage Area

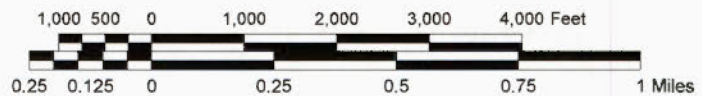
Township 6 North, Range 5 West, Columbia County, Oregon

NW Natural



Plot Date: January 22, 2008

- Calvin Creek Storage Area Boundary
- 200' Study Corridors
- Existing Pipelines



Original Site Certificate/Amendments	Consolidated Site Certificate
<p>ORS 469.400</p> <p>(3) The site certificate shall contain conditions for the protection of the public health and safety and shall require both parties to abide by state law and rules of the council in effect on the date the site certificate is executed, except that upon a clear showing that there is danger to the public health and safety that requires stricter laws or rules, the state may, subject to ORS 469.400, require compliance with such stricter laws or rules.</p> <p>(4) The site certificate shall contain the applicant's warranties as to its abilities required under ORS 469.470 (3), its provisions as to protection of the public health and safety and as to time of completion of construction.</p>	<p>ORS 469.401</p> <p>(2) The site certificate or amended site certificate shall contain conditions for the protection of the public health and safety, for the time for completion of construction, and to ensure compliance with the standards, statutes and rules described in ORS 469.501 and 469.503. The site certificate or amended site certificate shall require both parties to abide by local ordinances and state law and the rules of the council in effect on the date the site certificate or amended site certificate is executed, 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, the council may require compliance with such later-adopted laws or rules. For a permit addressed in the site certificate or amended site certificate, the site certificate or amended site certificate shall provide for facility compliance with applicable state and federal laws adopted in the future to the extent that such compliance is required under the respective state agency statutes and rules.</p>
<p>OAR 345-100-0036</p> <p>(1) The following supporting facilities can be located at distances in accordance with the schedule below from any existing permanent habitable dwelling:</p> <p>(a) Major facilities – 220 meters;</p> <p>(b) Minor facilities, excluding compressors – 15 meters;</p> <p>(c) Compressors rated less than 1,000 horsepower – 100 meters;</p> <p>(d) Roads and road maintenance equipment housing – 15 meters.</p>	<p>OAR 345-024-0030</p> <p>(1) The proposed facility is located at distances in accordance with the schedule below from any existing permanent habitable dwelling:</p> <p>(a) Major facilities, such as compressor stations, stripping plants and main line dehydration stations -- 700 feet.</p> <p>(b) Minor facilities, such as offices, warehouses, equipment shops and odorant storage and injection equipment -- 50 feet.</p> <p>(c) Compressors rated less than 1,000 horsepower -- 350 feet.</p> <p>(d) Roads and road maintenance equipment housing -- 50 feet.</p>

Original Site Certificate/Amendments	Consolidated Site Certificate
<p>OAR 345-100-040(1)(a), (b), and (c) (a) For groundwater which is potable, as defined by the Environmental Protection Agency . . . contaminants from the facility will not make the water non-potable; (b) For surface waters which meet the requirements of Oregon River Basins given in [applicable sections of the OAR] contaminants will not cause surface waters to exceed these levels. References to maximum permissible concentrations of radioactivity shall refer to Paragraphs 141.15a and 141.16 in the Federal Register Vol. 41, No. 133, July 9, 1976; (c) For ground or surface waters which currently exceed the foregoing standards of subsection (1)(a) or (b) contaminants in water discharged from the facility, measured at the point of entrance to the ground or surface water, will not exceed the concentrations of the foregoing standards, subsection (1)(a) or (b).</p>	<p>OAR Chapter 340 Department of Environmental Quality Rules</p>
<p>OAR 345-100-040(2), (4), (8) (2) The proposed site is not in one of the designated natural resource areas listed below and the proposed project is not likely to produce significant adverse impacts on any such area including: (a) National Parks, National Monuments and National Wildlife Refuges; (b) State of Oregon Parks, Waysides, Wildlife Refuges and Natural Area Preserves; (c) Wilderness areas as established under the areas recommended for designation as wilderness areas pursuant to Section 603 of the Federal Land Policy and Management Act of 1976; (d) Scenic Waterways designated pursuant to ORS 390.825; (e) Federally-designated Wild and Scenic Rivers established pursuant to Public Law 90-452; (f) Experimental areas established by the Rangeland Resources Project, School of Agriculture, Oregon State University; (g) Areas having unique or significant wildlife, geologic, historic, botanical, research or</p>	<p>OAR 345 Divisions 22 and 24 EFSC General Standards for Siting Facilities and EFSC Specific Standards for Siting Facilities</p>

Original Site Certificate/Amendments	Consolidated Site Certificate
<p>recreational values as lawfully designated by the state agency having jurisdiction over such values.</p> <p>(4) The proposed project is not likely to jeopardize the continued use of deer, elk and antelope wintering ranges or migration routes.</p> <p>(8) Construction and operation of the facility is not likely to jeopardize the continued existence of any of the following species, or destroy habitat critical to continued existence of these species:</p> <p>(a) Wildlife:</p> <p>(A) Deer, Columbia white-tailed</p> <p>(B) Wolf, Gray</p> <p>(C) Eagle, Bald</p> <p>(D) Falcon, American peregrin</p> <p>(E) Falcon, Arctic peregrin</p> <p>(F) Goose, Aleutian Canada</p> <p>(G) Pelican, brown</p> <p>(H) Butterfly, Oregon silverspot</p> <p>(b) Plants – any of 51 species proposed by the Fish and Wildlife Service as endangered in Oregon by publication in the Federal Register.</p>	

**CONSOLIDATED, RESTATED, AND AMENDED
UNDERGROUND STORAGE FACILITY**

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

~~**December 2007**~~

March 2008

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

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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 9 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

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.

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

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.

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.

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).

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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.

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

A. —The underground storage reservoir and related or supporting facilities to be constructed and operated consist of:⁺³

- A. 1. 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 ~~described~~ shown in Appendix 1 attached hereto and by reference incorporated herein; and

⁺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."

- 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. 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. Located in Columbia County, Oregon the following related or supporting facilities as shown on the attached Appendix 1 to the original Site Certificate: Miller Station with attendant equipment (including, but not limited to, compressors), gathering lines, access roads, existing natural gas wells, monitoring wells and proposed injection withdrawal wells. These locations may be adjusted as reasonable or necessary because of physical conditions. Two 1350 HP Superior reciprocating compressors not subject to EFSC CO₂ standards.
 3. One 5035 BHP Allison KC-5 turbine driven compressor installed in 1997 pursuant to Amendment 4 and not subject to EFSC CO₂ standards.
 4. One 7324 BHP Allison KC-7 turbine driven compressor installed in 2001 pursuant to Amendment 8 and subject to EFSC CO₂ standards.

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:

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A. ~~Completion of Construction~~

~~NWN warrants that the construction of the underground natural gas storage facility and related and supporting structures will be completed prior to August 31, 1990.~~

~~A.~~ B. ~~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.~~ C. ~~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.~~ D. ~~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 469.400 and OAR 345-100-011-469.401.~~ ORS 469.401.

A. State and Federal Law

1. NWN and EFSC shall abide by ~~all applicable state laws, including all laws~~ local ordinances and state ~~administrative law and the rules and regulations of the Council~~ in effect on the date of this Site Certificate is executed, except that upon a clear showing that there is danger of a significant threat to the public health and safety or the environment that

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~~requires stricter application of later-adopted laws or rules; then, in that case, EFSC may, subject pursuant to ORS 469.400, 469.401(2), require NWN to meet stricter state statutes or rules of EFSC or other state agencies or ordinances of cities or counties adopted subsequent to the execution of this agreement 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 ~~the facility~~ 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, ~~gathering lines~~, 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. Mandatory General Conditions Required by OAR 345-100-011

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 345-100-036(1) ~~024-0030~~ in effect on the date of this Certificate. [Amendment 10]
2. **Pipelines:** All pipelines in the project ~~area~~ 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.

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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 the ~~Oregon Department of Geology and Mineral Industries~~DOGAMI.
5. **Monitoring Program:** ~~Design, construction and operation of the underground storage reservoir and related or supporting facilities shall incorporate a monitoring program to ensure the public health and safety and to detect leakage using the best available surface and subsurface monitoring technology and testing procedures available as of the date of this Certificate or as described in NWN application and supporting testimony relating to OAR 345-100-040(6) and (7). . [Amendments 1,9] 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 and related or supporting facilities so as to prevent emissions of pollution into ground or surface water in violation of ~~OAR 345-100-40(i)(a), (b) and (c) and other state and Federal water pollution rules and statutes in effect on the date of this agreement.~~rules at OAR Chapter 340 administered by DEQ. [Amendment 10]
7. **Fragile Soils:** ~~The NWN underground storage reservoir and related or supporting facilities shall be designed, built and operated so as to reduce adverse impacts on unstable or fragile~~Deleted and superseded by specific conditions related to soils. [Amendment 10]
8. **Socio-Economic Impacts:** ~~Throughout the design, construction and operation of the underground storage facility NWN shall continuously cooperate with Columbia County to identify any adverse 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 storage facility and related or supporting facilities without infringing on the existing water rights of other persons 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 of OAR 345-100-040(2), (4) and (8) and any other EFSC standard. EFSC standards at OAR 345 Divisions 22 and 24. [Amendment 10]
11. **Gas Pressure:** ~~NWN shall maintain average gas pressure in the underground storage reservoirs at levels equal to or below the natural gas pressures in the reservoirs, prior to production of natural gas which was 1000 psi in the Flora pool and 940 psi in the Bruer pool. Provided, however, that NWN may maintain natural gas pressures at higher levels if NWN provides EFSC with results of a breakdown test of the caprock which shows to EFSC's satisfaction that a higher level of pressure will not endanger the public health and safety. Such higher level in any event shall not exceed 1250 psi. NWN shall notify EFSC and Columbia County when it notifies EFSC that it wishes to~~ applies to DOGAMI for an increase in reservoir gas pressures above discovery pressure. [Amendment +Amendments 1, 10]

~~V. OTHER CONDITIONS~~

~~It is agreed by NWN and EFSC that construction or replacement of any monitoring well, injection/withdrawal well, pipeline or gathering line, or any other facility not shown in Appendix I or identified in part II of this agreement shall require an amendment of this agreement as provided in part VII below.~~

~~V. VI-APPROVALS~~

The following approvals, permits, licenses, or certificates by governmental agencies are considered necessary to construct and operate ~~this~~ the surface facilities related to the underground gas storage of natural gas facility. Each appropriate state agency shall issue the permits identified below ~~consistent with the conditions in this agreement and not later than 90 days or sooner as provided by the appropriate agency's rules, from the time of filing of a complete application by NWN 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.

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

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2. **Department of Environmental Quality:** Air Contaminant Discharge Permit for the operation of the Mist underground storage facility.
3. **Public Utility Commissioner:** Compliance inspection of pipelines, pursuant to Title 49 CFR, Part 192 as necessary.
4. **Department of ~~Commerce~~ Consumer and Business Services:** Pressure vessel inspection, State Fire Marshall approvals and plan review of construction drawings.
5. **Department of Transportation:** Single trip permits for oversize or overweight loads.
6. **Columbia County:** Building, plumbing, electrical permits, and conditional land use permits. [Amendment 1]

VI. ~~VII. 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 5, 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(2)(b). 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. ~~VIII. CONDITIONS UNDER AMENDMENTS~~

- A. Conditions related to EFSC Standards Rules at OAR Chapter 345 Division 27 Applicable to Amendments 4 through 9
 1. Prior to any amendment that changes the site, NWN shall submit to the ~~department~~ Oregon Department of Energy (ODOE) a legal description of

NWN Mist Gas Storage Facility
Consolidated Site Certificate
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the Project site to be appended to the Site Certificate prior to construction.
[~~Amendment~~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 amendment to time the Council issues or amends the Site Certificate ~~is issued~~; and
 - c. In compliance with all applicable permit requirements of other state agencies. [Amendment 4]
- ~~3. Construction of the Project shall begin not later than:~~
 - ~~a. December 31, 1997 and be completed not later than November 30, 1998 for Amendment 4.~~
 - ~~b. March 31, 2000 and be completed not later than December 31, 2001 for Amendment 6.~~
 - ~~c. December 1, 2001 and be completed not later than June 1, 2002 for Amendment 8.~~
 - ~~d. December 1, 2004 and be completed not later than December 31, 2005 for Amendment 9.~~
3. ~~4.~~ No construction, including clearing of a right of way, except for the initial survey, may commence on any part of the facility until the certificate holder has adequate control, or has the statutory authority to gain control, of the lands on which clearing or construction will occur. [Amendment 4]
4. ~~5.~~ NWN shall, to the extent practical, prevent any condition ~~over which NWN has control~~ from developing on the Project site that would preclude restoration of the site to a useful condition. [~~Amendment 4~~Amendments 4, 10]
5. ~~6.~~ NWN shall restore vegetation to the extent practicable and shall landscape portions of the area disturbed by Project construction in a

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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. ~~7-~~NWN may operate all compressors installed as of January 11, ~~1999~~2008 at full rated capacity. ~~— [Amendment 6]~~ [Amendments 6, 10]
7. ~~8-~~NWN shall notify ~~ODE~~ODOE, the State Building Codes Division and ~~the Department of Geology and Mineral Industries~~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. ~~9-~~NWN shall notify ~~ODE~~ODOE, the State Building Codes Division and ~~the Department of Geology and Mineral Industries~~DOGAMI promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site. [Amendment 6]
9. ~~10-~~NWN shall submit to ~~the department~~ODOE copies of all incident reports involving the certified pipeline required under 49 CFR § 192.709. [Amendment 6]
10. ~~11. The site boundary is as specific in Exhibit 2 to the Application for Amendment 7;~~ Pursuant to Amendment 9, the permitted daily throughput of the facility is 515 MMcfd. [Amendments 7, 8, 9]
11. ~~12-~~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]

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.

- ~~12.~~ 13. If NWN becomes aware of a significant environmental change or impact attributable to the facility, NWN shall submit to ~~OOE~~ODOE as soon as possible a written report identifying the issue and assessing the impact on the facility and any affected Site Certificate conditions. [Amendment 6]

B. Conditions related to EFSC Standards at OAR Chapter 345 Division 22

1. Conditions Generally Applicable to ~~Amendments 4 through 9~~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]
- (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 ~~the Office of Energy~~ODOE. [Amendment 4]
- (3) Water used for pressure testing shall be disposed of in a manner consistent with approved permits. [Amendment 4]

c. Retirement

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- (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 ~~gathering lines and~~ pipelines,
 - (d) If necessary, revegetate the area, including pipeline ~~right rights-of -ways~~, to ~~present~~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]

2. **Conditions Applicable to ~~Amendments~~Amendment 4**

a. **Structural and Soils**

- (1) The pipeline corridor shall be ~~substantially~~ as shown on Figure G-1 of Exhibit 10 of the Application for Amendment 4. ~~Significant changes~~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

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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

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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 ~~Amendments~~ Amendment 6**

a. **Structural and Soils**

- (1) The pipeline corridor shall be substantially as shown on Figure G-1 of Exhibit 14 of the Application for Amendment 6. ~~Significant changes in NWN may change the pipeline corridor shall require prior Council approval. [Amendment 6 by obtaining ODOE or EECS concurrence as described in OAR 345-027-0050. [Amendments 6, 10]~~
- (2) NWN shall design and construct the ~~gathering lines~~ 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 ~~gathering line~~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 ~~gathering line~~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 (~~BMP's~~BMPs) to prevent erosion of soil into the ephemeral stream channel during construction of the ~~amendment 9 gathering lines~~Amendment 9 pipelines. [Amendment 9]
- (4) Following construction of the ~~gathering lines~~pipelines for Amendment 9, NWN will allow and encourage native vegetation to grow back in the temporary construction easement and staging areas. [Amendment 9]
- (5) Where revegetation is necessary in the permanent right-of-way for the ~~gathering lines~~pipelines constructed under Amendment 9, NWN will plant vegetation that provides forage for big game species. [Amendment 9]
- (6) During ~~gathering line~~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 ~~gathering lines~~ pipelines. [Amendment 9]
- (8) Construction of the Busch well ~~gathering line~~ pipeline will follow the US Fish and Wildlife Service scheduling and distance guidelines to avoid adverse impact to the bald eagle nest. [Amendment 9]

C. 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 ~~order~~ 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 Amendments 4 through 9 ~~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 ~~gathering lines terminating at~~ pipelines connecting Miller Station and the Busch Valve Station and at both ends of the eight inch and six inch ~~gathering lines~~ pipelines connecting the well sites with the sixteen inch ~~line~~ 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~~ 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 ~~the Office of Energy~~ ODOE, if the total

from this mathematical addition exceeds the limits in Table 8 of OAR 340-035-0035. [Amendment 8]

D. Other Amendment-Specific Conditions

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]

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- (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

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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:

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- (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 ~~to~~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 345-022-0130 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 345-022-0130 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]

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

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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 Office of Energy (“Office”) 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 be 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 Office 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 OOE the annual hours the new compressor operated and its fuel use in Btu. NWN shall provide the annual report to the Office within 30 days of the anniversary date of beginning commercial operation of the new compressor. [Amendment 8]
 - (a) The Office 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 Office 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 Office 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 $\$0.85 \times (1.0891)^t$ 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 Office 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 Office 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 Office 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. **Condition 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]

VIII. ~~IX.~~ 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 Oregon Natural Gas Development Corporation as below subscribed on this day of (Sept. 30), 1981.

(Original signed by Raphael Wilson, Chair, Energy Facility Siting Council and Ronald T. Miller, President, Northwest Natural Gas)

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Input	
Document 1	file://C:/Documents and Settings/dew2984.STOEL/Desktop/Orig Mist original consolidated document - Dec 07.doc
Document 2	file://C:/Documents and Settings/dew2984.STOEL/Desktop/Final Mist Site Certificate 2.20.07.doc
Rendering set	Stoel Standard

Legend	
<u>Insertion</u>	
Deletion	
Moved from	
<u>Moved to</u>	
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Format change	
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Split/Merged cell	
Padding cell	

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