

Exhibit X

Facility Retirement and Site Restoration

Mist Resiliency Project
March 2024

Prepared for



Northwest Natural Gas

Prepared by



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Acronyms and Abbreviations

DOGAMI	Oregon Department of Geology and Mineral Industries
I/W	Injection/withdrawal
NMCS	North Mist Compressor Station
NWN	Northwest Natural Gas
OAR	Oregon Administrative Rule
Project	Mist Resiliency Project
RFA	Request for Amendment

1.0 Introduction

Northwest Natural Gas (NWN), the Certificate Holder, proposes to amend the Site Certificate for its Mist Underground Natural Gas Storage Facility through the Mist Resiliency Project (Project) in Columbia County, Oregon. This Exhibit X was prepared to demonstrate that the Project complies with the approval standard in Oregon Administrative Rules (OAR) 345-022-0050(1) based on information provided pursuant to OAR 345-021-0010(1)(x), paragraphs (A) through (E)

OAR 345-022-0050 Retirement and Financial Assurance

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

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

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

With the proposed changes, NWN is still able to restore the site to a useful, nonhazardous condition following permanent cessation of construction or operation of the facility. Request for Amendment (RFA) 13 does not alter the basis for the Oregon Energy Facility Siting Council's (EFSC) prior findings regarding retirement and financial assurance, and does not alter NWN's ability to comply with the Site Certificate conditions. See Exhibit M for accompanying analysis on NWN's financial capability pursuant to OAR 345-021-0010(1)(m), along with Attachments M-1, M-2, and M-3.

2.0 Estimated Useful Life of the Project – OAR 345-021-0010(1)(x)(A)

OAR 345-021-0010(1)(x) Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant must include:

OAR 345-021-0010(1)(x)(A) The estimated useful life of the proposed facility;

The estimated facility life is indefinite because it is not anticipated that the natural underground reservoirs will lose their storage capacity and the process equipment will be replaced as needed. The original Mist storage facility has been fully operational since 1988. The integrity of the formation and capacity of the reservoirs have not changed in nearly 36 years of operation. However, if retirement is necessary, the site can be restored to a useful, non-hazardous condition.

3.0 Actions to Restore the Site – OAR 345-021-0010(1)(x)(B)

OAR 345-021-0010(1)(x)(B) Specific actions and tasks to restore the site to a useful, non-hazardous condition;

Retirement and decommissioning would be conducted in accordance with the nature of the equipment and structures (i.e., gas processing facilities, pipelines, powerline). The retirement process for these facilities would be the same as for those described in Amendments 4, 9, and 11, with the standards and consideration of offsetting scrap and salvage values approved by EFSC. If retirement of the facility is anticipated, NWN will include a proposed final retirement plan for the facility in its application for termination of the Site Certificate pursuant to OAR 345-027-0110. Specific actions to be taken to retire the facility and restore the site are provided below.

3.1 Gas Processing Facilities

Upon decommissioning, the process equipment would be removed and sold as used equipment or scrap. Any hazardous materials stored in the buildings or located within the process equipment would be removed and disposed of following the applicable state and federal hazardous materials statutes and rules. The buildings would be disassembled, and the steel siding and frames would be sold as scrap metal. The concrete slabs would be broken up, and the concrete would be recycled or disposed of at an appropriate landfill. The I/W line manifold and the aboveground portion of the I/W pipelines would be removed and sold as scrap metal. The fence would also be removed and sold as scrap metal. At the North Mist Compressor Station (NMCS), in collaboration with local landowners and commercial timber operators, NWN would remove gravel and structural fill and replace it with topsoil to a sufficient depth to enable growth of commercial timber. Any structural fill would be offered to surrounding landowners, sold, and reused. The grade would be left as-is. It is also assumed that all buried piping would be purged, then cut and capped below grade and left in place.

3.2 Injection/Withdrawal Pipelines and Powerline

The proposed new I/W pipelines will extend a short distance underground from the NMCS to the new wellheads (situated adjacent to the NMCS). Upon decommissioning, the underground portion of the I/W pipelines would be left in place because removing the pipelines would cause unnecessary disruption to the environment. Before abandoning the pipelines, NWN would inspect them and would remove any hazardous materials in the I/W pipelines. The aboveground portions of the pipelines would be removed and sold as scrap metal. If necessary, NWN would remove structural fill, restore topsoil, and revegetate the well pad to enable growth of commercial timber. NWN would comply with any local permits concerning restoration of the well pad area. The powerline, which will extend from Highway 202 to Miller Station, would be retired in place, with no need for any additional restoration work.

3.3 Injection/Withdrawal and Monitoring Wells

The I/W and monitoring wells are composed of an aboveground portion, the wellhead, and an underground portion, the encased well. An I/W wellhead is typically installed through a concrete base; a monitoring wellhead is installed through a gravel base. Upon decommissioning, the wellhead would be removed, and the well would be plugged in compliance with Oregon Department of Geology and Mineral Industries (DOGAMI) regulations. The wellhead would be sold as scrap metal. The concrete base would be broken up, and the concrete would be recycled or disposed of at an appropriate landfill. The well would be capped at least 4 feet below ground level, as required by DOGAMI. If necessary, NWN would revegetate the wellhead area to prevent erosion and encourage native habitat redevelopment, and would otherwise reclaim the well site in accordance with DOGAMI regulations. Because the wells are subject to the sole jurisdiction of DOGAMI, with Columbia County responsible for local land use compliance, the retirement and any associated costs would be within the Columbia County's and DOGAMI's purview.

4.0 Total Costs, Estimating Methods, and Assumptions

4.1 Estimate of Cost – OAR 345-021-0010(1)(x)(C)

OAR 345-021-0010(1)(x)(C) An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition;

The retirement costs for the facility are primarily associated with buildings, equipment, and associated infrastructure at the NMCS, Miller Station, and the Miller Station powerline replacement. The restoration cost of the facility includes the removal and disposal cost of all structures, foundations, compressors, valves, pressure vessels, aboveground piping, all other auxiliary equipment, soil replacement, and revegetation. The restoration costs would be partially offset by the salvage value of certain equipment and components.

At the NMCS, NWN estimates the cost of restoration attributable to improvements authorized under RFA 13 to be approximately \$6,150,000 in 2023 dollars. These estimates are based on information provided by licensed engineers at Burns & McDonnell, Inc. (see Attachment M-3), detailed below:

Removal & Disposal Costs (North Mist Compressor Station)

Scrap value of equipment, pipe, steel, and insulated copper wire	(\$200,000)
Removal cost of equipment, pipe, steel, and insulated copper wire	\$4,500,000
Removal of foundations	\$500,000
Remove yard stone and hydroseed	\$150,000
Decommission of surface equipment at the well pads & pipeline	\$1,200,000
Total Removal Cost	\$6,150,000

At Miller Station, NWN estimates the cost of restoration attributable to improvements authorized under RFA 13 to be approximately \$1,450,000 in 2023 dollars. These estimates are based on information provided by licensed engineers at Basic Systems, Inc. (see Attachment M-2), detailed below:

Removal & Disposal Costs (Miller Station)

Scrap value of equipment, pipe, steel, and insulated copper wire	(\$200,000)
Removal cost of equipment, pipe, steel, and insulated copper wire	\$1,000,000
Removal of foundations	\$500,000
Remove yard stone and hydroseed	\$150,000
Total Removal Cost	\$1,450,000

For the Miller Station powerline replacement, NWN estimates the cost of restoration attributable to improvements authorized under RFA 13 to be approximately \$55,000 in 2024 dollars. These estimates are based on information provided by licensed engineers at Burns & McDonnell, Inc. (see Attachment M-1), detailed below:

Removal & Disposal Costs (Miller Station Powerline Replacement)

Scrap Value of insulated copper wire	(\$45,000)
Removal cost of insulated copper wire	\$100,000
Total Removal Cost	\$55,000

4.2 Estimating Methods and Assumptions – OAR 345-021-0010(1)(x)(D)

OAR 345-021-0010(1)(x)(D) A discussion and justification of the methods and assumptions used to estimate site restoration costs; and

Attachments M-1 through M-3 provide itemized methods and assumptions for each of the removal and disposal costs shown above.

5.0 Monitoring Plan – OAR 345-021-0010(1)(x)(E)

OAR 345-021-0010(1)(x)(E) For facilities that might produce site contamination by hazardous materials, a proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.

Consistent with existing Site Certificate conditions, prior to termination of the Site Certificate, NWN will retire the Project site sufficiently to restore it to a useful condition. All materials stored in buildings or located in process equipment will be removed, all buildings and steel structures will be

disassembled, and all concrete slabs will be broken up and transported to a recycling facility or landfill. Any structural fill removed from the Project location (to restore soils for productive commercial forestry purposes) will be recycled and reused. If a monitoring plan is required for operation, retirement would fall under the existing plan. As stated in Exhibit W, no hazardous substances will be generated during the retirement phase; therefore, no additional monitoring plan will be required.

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