

FINAL ORDER on AMENDMENT No. 9

to

**SITE CERTIFICATE for NORTHWEST NATURAL GAS
MIST UNDERGROUND GAS STORAGE FACILITY**

TABLE OF CONTENTS

I.	Introduction and Background.....	1
II.	Description of the Application for Amendment	2
	A. Description of the Facility.....	2
	B. Changes to the Facility proposed by NW Natural.....	2
	C. Amendments to the Site Certificate proposed by NW Natural	3
III.	Amendment Process and Procedural History.....	4
IV.	Findings and Conclusions	4
	A. Compliance with EFSC Standards in OAR 345 Division 22.....	4
	1. OAR 345-022-0010 Organizational, Managerial and Technical Expertise	4
	2. OAR 345-022-0020 Structural Standard	5
	3. 345-022-0022 Soil Protection	9
	4. 345-022-0030 Land Use.....	11
	5. 345-022-0040 Protected Areas.....	23
	6. 345-022-0050 Retirement and Financial Assurance	24
	7. 345-022-0060 Fish and Wildlife Habitat	25
	8. 345-022-0070 Threatened and Endangered Species	27
	9. 345-022-0080 Scenic and Aesthetic Values	28
	10. 345-022-0090 Historic, Cultural and Archaeological Resources	29
	11. 345-022-0100 Recreation.....	30
	12. 345-022-0110 Public Services	31
	13. 345-022-0120 Waste Minimization.....	33
	B. Standards in OAR 345 Division 24.....	34
	1. OAR 345-024-0030 Public Health and Safety.....	34
	2. Carbon Dioxide Standard for Nongenerating Energy Facilities, OAR 345-024-0620 ...	35
	C. Requirements of Other Agencies	39
V.	Issues Raised in Public Comment.....	39
VI.	Order and Conditions for the Site Certificate Amendment	40
	A. Mandatory Conditions under OAR 345 Division 27	40
	B. Conditions related to EFSC Standards at OAR Chapter 345 Division 22	40
	C. Conditions Related to CO2 Standards at OAR 345 Division 24	41
	D. NWN Request to eliminate the Vibration Monitoring Program.....	42

**BEFORE THE ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON**

In the Matter of the Application by)
Northwest Natural Gas Co.) FINAL ORDER
for Amendment No. 9 to its) on
Site Certificate for the Mist Underground) AMENDMENT 9
Natural Gas Storage Facility)

I. Introduction and Background

The Energy Facility Siting Council ("Council", or "EFSC") issues this final order in accordance with ORS 469.405 and OAR 345-027-0070. This order addresses a request by Northwest Natural Gas (NWN) for amendment 9 of its site certificate for the Mist Underground Natural Gas Storage Facility located near Mist, Oregon, in Columbia County.

The Council issued the site certificate on September 30, 1981 to the Oregon Natural Gas Development Corporation ("ONG"), a wholly owned subsidiary of NWN.

The Council has amended the site certificate eight times. Amendment 1, issued in October 1987, extended the deadline for construction and made minor modifications to other sections of the site certificate. Amendment 2, issued in August 1988, added a monitoring well. Amendment 3 issued in September 1990, allowed NWN to replace some injection/withdrawal wells. In 1990 ONG assigned the site certificate to its parent company, NWN.

Amendment 4, which EFSC approved in July 1997, allowed expansion of the site boundary to include the Calvin Creek storage area, development of related and supporting surface facilities associated with new underground storage reservoirs in the Calvin Creek Storage Area, and upgrading of related and supporting surface facilities at NWN's Miller Station.

Amendment 5, which EFSC approved in March 1998, made the current EFSC rules at OAR 345-027-0050 through 0080 applicable to the facility. These rules govern the process for site certificate amendments.

Amendment 6, approved on March 31, 1998, allowed further storage development in the Calvin Creek area, on land within the site as previously enlarged by amendment 4.

Amendment 7, approved on November 17, 2000, increased the permitted daily throughput to 245 million cubic feet per day (mmcf/d). The amendment did not authorize construction of any new equipment or facilities, but it removed all operating restrictions on existing equipment. This meant that any further increases in storage capacity or throughput would necessitate the installation of new facilities or equipment.

Amendment 8, issued on October 26, 2001, increased the permitted throughput to 317 mmcf/d and authorized installation of a new compressor on land already within the site.

NWN requested amendment 9 on September 15, 2003. NWN proposes to develop two new gas storage pools on land within the approved site, install new gathering lines to those pools, increase the maximum daily throughput to 515 mmcf/d, install gas processing equipment at the Miller Compression station to facilitate the increase in throughput, and remove a requirement for a vibration monitoring program that was first implemented in 1987.

In this order, all terms that are defined in OAR 345 Division 1 have the meaning assigned to them in that division unless stated otherwise. In particular, the term "site" means the approved site for the Mist storage facility, including the Miller compression station, the Bruer/Flora gas storage area that the Council approved in the original site certificate, and the Calvin Creek storage area that the Council approved in amendment 4 in 1997.

II. Description of the Application for Amendment

A. Description of the Facility

The Mist underground storage facility provides NWN with a means of balancing relatively constant pipeline gas supplies with widely fluctuating market requirements. NWN injects gas into storage during off-peak periods and withdraws it when demand exceeds available supplies from other sources. Underground reservoir storage requires suitable underground geological conditions in a specific geographic area. These conditions occur in depleted oil or gas pools. NWN identified the Mist site as one such area in the late 1970's. The underground natural gas storage operation consists of a natural gas production field, retrofitted to inject gas back into the ground and withdraw it on a cyclical basis.

In addition to the naturally occurring underground gas pools, the facility includes related and supporting surface facilities. Most of these are located at NWN's Miller Station, which includes compressors, piping, control, dehydration and auxiliary systems. Other surface facilities related to the underground gas storage include gathering lines and facilities for NWN maintenance and operations staff.

The Mist facility consists of the Bruer/Flora area and the Calvin Creek area. Bruer/Flora and the Miller compression station are located north of the Nehalem River in rural Columbia County, in parts of sections 2,3,4,10 and 11 of Township 6 North Range 5 West, Willamette Meridian. The Calvin Creek area, south of the Nehalem, was added in 1997 in amendment 4. It is two and one-half miles south of Miller Station in parts of sections 21,22,23,26 and 27. Twin 16-inch pipelines cross the Nehalem River and connect the Calvin Creek area with Miller Station.

B. Changes to the Facility proposed by NW Natural

NWN proposes to develop two new storage pools, the "Busch" pool and the "Schlicker" pool, on land already within the Calvin Creek site. The development of these pools requires two new injection/withdrawal wells. The wells are not under EFSC jurisdiction, but are under the jurisdiction of the Department of Geology and Mineral Industries (DOGAMI). The development also requires new gathering lines to connect the wells to Miller Station. The gathering lines are under EFSC jurisdiction.

NWN also proposes to increase the permitted daily throughput from 317 mmcf/d to 515 mmcf/d. The increase does not require any new compressors, but does require new dehydration equipment, gas quality and monitoring equipment, and interconnect piping. This equipment

would allow NWN to reach 425 mmcf/d during a compression cycle. Early in the withdrawal cycle, under peak demand conditions, NWN could reach 515 mmcf/d under free flow conditions (no compression). NWN has requested a maximum throughput of 515 mmcf/d. All the above equipment would be at Miller station.

Finally, NWN proposes to end the vibration monitoring program specified in Amendment 1. The program has been in place since 1987. Its purpose was to determine if there was any correlation between underground storage activities and earthquake-like events that may occur in the vicinity of the storage operations. NWN wishes to end this program because after 16 years of data collection, there has been no correlation between storage activities and earthquake-like events.

C. Amendments to the Site Certificate proposed by NW Natural

NWN requested four changes to the site certificate. First, NWN suggested the following language authorizing the project:

“This amendment authorizes NWN to increase the allowed throughput at the Mist storage facility from 317 million cubic feet per day (mmcf/d) to 515 mmcf/d. The amendment authorizes the construction of improvements at Miller Station, including the installation of new dehydration facilities and gas quality and monitoring equipment. This amendment also authorizes NWN to develop related and supporting facilities associated with new underground storage reservoirs in the Calvin Creek storage area.”

NWN suggested amending the site-specific conditions under OAR 345-027-0023 to read:

“Pursuant to amendment 89, the permitted daily throughput of the facility is ~~317~~ 515 million cubic feet per day.”

NWN requested the following change to the monitoring conditions adopted in Amendment 1:

“Design, construction and operation of the underground storage reservoir and related and supporting facilities shall incorporate a monitoring program to ensure the public health and safety and to detect leakage using the best available technology and testing procedures available as of the date of this Certificate or as described in ONG’s application and supporting testimony relating to OAR 345-100-040(6) and (7). ~~ONG shall recommend for EFSC a approval a program to evaluate reported local unusual vibrations. The program shall include reports not less than annually to EFSC. If ONG or EFSC believes there is a correlation between reported vibration and storage reservoir activity, ONG shall recommend to EFSC a program to install and monitor seismic instruments.~~”

Finally, NWN requested the following new condition:

“Before construction or operation of the Busch gathering line and associated facilities, NWN will obtain conditional use approval from Columbia County authorizing the injection/withdrawal well site 24H-15-65.”

However, this condition is not necessary because on October 14th 2003 Columbia County issued notice of Final Order CU-04-09 approving the conditional use for this injection/withdrawal well.

III. Amendment Process and Procedural History

NWN submitted the application for amendment 9 on September 15, 2003. The Oregon Department of Energy¹ ("ODOE" or "the Department"), which serves as staff to EFSC, mailed notice of the application to the EFSC general mailing list, the special mailing list that ODOE maintains for the Mist storage facility, and to adjacent property owners listed by NWN in the amendment application pursuant to OAR 345-027-0060(1)(g). The notice requested public comments on the application by October 16, 2003. There were no comments from the public.

Also on September 15, ODOE sent the application to the agencies, tribes and local governments listed in OAR 345-020-0040(1), and requested comments by October 16, 2003. ODOE received comments from the State Historic Preservation Officer (SHPO), the Forestry Department, the Department of Geology and Mineral Industries (DOGAMI), the Department of Fish and Wildlife (ODFW) and Columbia County.

On October 31, 2003, ODOE issued a proposed order, recommending approval of the amendment with conditions. ODOE issued notice of the proposed order to the persons, agencies, tribes and local governments who received notice of the amendment. The notice stated that ODOE must receive any comments on the proposed order, including any request for contested case, by the close of business on December 1, 2003. ODOE received one comment, from NWN, discussed in section V of this order.

IV. Findings and Conclusions

A. Compliance with EFSC Standards in OAR 345 Division 22

1. OAR 345-022-0010 Organizational, Managerial and Technical Expertise

Under Part (1) of this standard the Council must determine whether the applicant has

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

Part (2) of this standard allows the applicant to take credit for any ISO-certified programs that may apply. No such programs apply in this case.

Part (3) of the standard states that:

"if the applicant does not itself obtain any state or local government permit or approval for which the Council would ordinarily determine compliance but instead relies on a permit or approval issued to a third party, the Council, to issue a site certificate, must find

¹ 2003 Senate Bill 478 changed the Oregon Office of Energy to Oregon Department of Energy, effective January 1, 2004. This order uses the term "Department" to reflect the pending change.

that the third party has, or has a reasonable likelihood of obtaining, the necessary permit or approval, and that the applicant has, or has a reasonable likelihood of entering into, a contractual or other arrangement with the third party for access to the resource or service secured by that permit or approval."

Discussion

NWN has applied for and received amendments to the Mist site certificate five times since 1997. Their application for amendment 9 describes essentially the same qualifications that they described in previous amendment requests. Absent any evidence to the contrary, the findings from those amendments regarding this standard still apply. The Council's November, 2000 order approving amendment 7 states:

"NWN is a 140 year old company whose core business is the local distribution of natural gas. NWN or its former subsidiary ONG have operated the Mist underground storage facility since 1988. The requested amendment would not allow NWN to construct a new type of facility, but would allow expansion of facilities that are already operating. The company personnel who have been managing the existing storage facility will continue to operate the expanded facility. The individuals responsible for the design and construction of the expanded facility are the same individuals responsible for the Calvin Creek project in 1997. Inspections by ODOE staff indicate that NWN complied with site certificate conditions in implementing the Calvin Creek project.

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

NWN has identified no ISO programs, and will obtain all permits directly. Therefore sections (2) and (3) of this standard do not apply.

Conclusion

Amendment 9 would authorize the installation and operation of equipment that is practically identical to facilities and equipment installed under amendments 4, 6 and 8. NWN's prior experience constructing and operating the Mist Storage Facility, its development of the Calvin Creek area in 1997, the South Mist Feeder extension in 1999 and the new compressor in 2001 provide reasonable assurance that NWN can successfully construct, operate and retire the upgrades requested in amendment 9. No new conditions are required.

2. OAR 345-022-0020 Structural Standard

This standard requires that:

(1) The applicant, through appropriate site-specific study, has adequately characterized the site as to seismic zone and expected ground motion and ground failure, taking into account amplification, during the maximum credible and maximum probable seismic events; and

(2) The applicant can design, engineer, and construct the facility to avoid dangers to human safety presented by seismic hazards affecting the site that are expected to result from all maximum probable seismic events. As used in this rule "seismic hazard" includes ground

shaking, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement, and subsidence;

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

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

Discussion

The standard has site characterization requirements and design and construction requirements, considering both earthquake and non-earthquake hazards. NWN must meet the standard for both the Miller station improvements and the gathering lines.

The application for amendment characterizes the seismic hazard in terms of maximum credible (MCE) and maximum probable (MPE) events. The maximum credible events are an interplate Cascadia Subduction Zone earthquake of magnitude 9.0, an intraplate event of magnitude 7.5, and a random crustal event four miles from the site with magnitude 6.0. The maximum probable event for the site is an earthquake of magnitude 7.9, with epicentral distance 30 miles from the site. These postulated seismic events are consistent with the corresponding events considered in Amendments 4,6, and 8.

a. Miller Station Improvements

The NWN proposal includes new equipment at Miller Station and new gathering lines on land already within the site. The dehydration equipment, piping connections and monitoring equipment will be similar to equipment that was installed under Amendments 4 and 8.

For this reason, NWN relied largely on the geotechnical work that supported of EFSC's findings of compliance with the structural and soils standard for Amendment 4 in 1997. NWN's geotechnical consultant, GeoEngineers, reviewed the studies submitted in support of amendment 4 and concluded that the Miller Station improvements associated with this amendment do not change any of the conclusions reached in the site characterization for Amendment 4.

Sections (1) and (2) of this standard require characterization and design for seismic hazards. The Council based its findings of compliance for Amendment 4 on the Oregon Structural Specialty Code (OSSC), 1993 Edition, which designates the site as Seismic Zone 3. In the 1998 edition, the zone designation is the same. The code provides design criteria for structures in this zone based on the ground acceleration and likely amplification or shaking that may occur during an earthquake. NWN's geotechnical consultant, GeoEngineers, reviewed the 1997 studies and concluded that "****the seismicity and seismic zone at Miller Station are unchanged since the report was written****" (Request for Amendment 9, Exhibit 4). Therefore NWN's characterization of the site in terms of seismic zone and ground response remain appropriate.

Section (2) contains a design requirement for seismic hazards. GeoEngineers reviewed the design recommendations that applied under amendment 4 and issued new recommendations in an August 20, 2003 report ("Foundation Report Update, Miller Station Gas Compression Facility, Mist Oregon"). In this report they reviewed the following design parameters from Amendment 8:

Seismic Design Parameters

Parameter		Value
Seismic Zone Factor	Z	0.30
Soil Profile Type	S	S _C
Seismic Coefficient	C _a	0.33
Seismic Coefficient	C _v	0.45

The update report states that “***the recommendations in the January 24, 1997 geotechnical report and the August 6, 2001 Foundation update report remain appropriate for use in design of the proposed expansion. Furthermore, it is our opinion that the proposed construction will not produce or contribute to seismic hazards” (Exhibit 3, application for amendment 9)

Sections (3) and (4) require consideration of, and design for, geological and soils hazards that could happen without a seismic event. Although the EFSC structural standard did not contain these sections in 1997, NWN’s application for amendment 4 considered non-seismic geological and soils hazards. As noted above, NWN current geotechnical consultant, GeoEngineers, reviewed that 1997 study in light of this proposed amendment and found that its conclusions and recommendations remain valid. Soil conditions at Miller station have not changed in that time, and the foundation work needed for the proposed equipment additions is similar to the work done for the 1997 upgrades.

In its September 18, 2001 report to NWN, GeoEngineers made specific recommendations regarding earthwork, fill placement and compaction, slope inclinations, foundation support, bearing capacity, lateral resistance and mat foundations. The Council added these recommendations as conditions to Amendment 8, and the information supplied for Amendment 9 indicates that they remain appropriate. With these recommendations implemented as conditions, the Miller station improvements meet sections (3) and (4) of the standard.

b. Gathering Line Additions

Using the MCE and MPE events described above, NWN characterized the ground response for the proposed gathering line locations and calculated the expected peak ground accelerations. For all MCE and MPE events, the ground response was bounded by the design specifications in the OSSC (figure H-6, exhibit 5 of the application for amendment). Studies of the gas transmission system in California indicate that welded steel pipelines built with post World War II construction techniques are not vulnerable to ground shaking from events of this magnitude.

NWN also considered non-seismic hazards such as erosion and landslide, as required by sections (3) and (4). The soils in the area are clayey and adhesive, with varied susceptibility to erosion. The proposed alignment for the Schlicker gathering line and about 0.5 miles of the alignment for the Busch gathering line follow existing forest roads, where existing surface water drainage systems reduce the erosion potential. NWN is required to prepare an erosion and sediment control plan to fulfill requirements for an NPDES 1200-C permit (a federal permit). NWN will reseed exposed soil areas that are affected by construction to establish a cover crop, and will use

sediment fences and check dams until the affected areas are vegetated. NWN will use waterbars in overland corridors so that surface drainage continues to natural drainage patterns. Where the pipeline trench would create a preferential path for water, NWN will install water breaks to retard ground water flow along the pipeline and reduce the potential for backfill erosion. NWN's geotechnical consultant also recommended use of outlet pipes in very wet areas to dispose of trapped water and discharge it to a location away from the pipe and toward natural drainage features. These are the same construction techniques that NWN has used in construction of amendments 4 and 6 and South Mist Feeder amendment 2.

Regarding landslide hazard, NWN used ground studies and aerial photographs to identify four landslides in the general area. All were dormant, ranging from 110 feet to 600 feet from the proposed gathering lines, and presented low potential risk. The proposed alignments cross moderately sloping ground or are located along existing logging roads where no grading will be required. The erosion and drainage control methods described above will reduce potential for slopes to be destabilized. As noted above, the construction techniques observed during amendments 4 and 6 and South Mist Feeder amendment 2 incorporate the measures recommended by NWN's geotechnical consultants and have proven effective in avoiding geological and soil based hazards.

c. Request to Eliminate Vibration Monitoring Program

In amendment 1 (1987), the Council imposed a condition requiring a vibration monitoring program. The purpose of the program was to address concerns from local residents that the cyclic injection and withdrawal of natural gas at high pressures might cause local vibrations and affect the amount of seismic activity in the area. Under the program, NWN provided survey forms to residents in the area and collected data on ground vibrations experienced by those residents. NWN also tracked gas storage activities and reviewed the data to determine if there was any correlation between storage activities and reported vibrations. NWN reported the results to ODOE on a quarterly basis.

In the 15 years since 1987, there has been no correlation between reported vibrations and gas storage activities. NWN requests removal of this program because sufficient data has been taken to show that a correlation is extremely unlikely.

ODOE consulted with the Department of Geology and Mineral Industries (DOGAMI) and they concur with NWN's assessment that 15 years is sufficient. Continuing this program for an additional time period would have little value, and ODOE has received no comments from the public of any ongoing concern that the storage activities at Mist are causing vibrations locally.

DOGAMI suggested that an accelerometer in the area, connected to the University of Washington network of seismic monitoring devices, would have more value. However, the program imposed in amendment 1 was intended to address a local concern, while the accelerometer proposed by DOGAMI would not be a surveillance of the energy facility but rather part of DOGAMI's ongoing efforts to improve seismic monitoring on a regional basis. The additional instrumentation is worthwhile, but not as a direct consequence of the Mist facility. Correspondence between DOGAMI and ODOE² indicates that NWN is willing to discuss this program with DOGAMI outside the site certificate process. The Council recommends that

² Email to Adam Bless, ODOE from Yumei Wang, DOGAMI 10/14/2003

DOGAMI and NWN continue to pursue this installation on a voluntary basis, but does not recommend imposing a condition. The Council grants NWN's request to remove the amendment 1 program.

Conclusion

The Council finds that NWN has adequately characterized the site in terms of seismic zone, expected ground response during maximum credible seismic events, and non-seismic hazards. NWN can design and construct the modifications authorized by amendment 9 to avoid potential dangers presented by seismic and non-seismic hazards affecting the site. The Council will apply the structural conditions from amendment 8 to the Miller Station improvements for amendment 9 as well. The Council also agrees to eliminate the condition imposed under amendment 1 requiring the vibration monitoring program.

3. 345-022-0022 Soil Protection

Under this standard the Council must find that:

“the design, construction operation and retirement of the facility, taking into account mitigation, are not likely to result in a significant adverse impact to soils including but not limited to erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluents and chemical spills.”

Discussion

For the proposed upgrades at Miller Station, NWN referred to on prior studies submitted in support of Miller station equipment upgrades described in Amendments 4, 6 and 8. The final order approving Amendment 4 states that:

“Impacts at Miller station will not be significant because the station is already an industrial site, and the planned equipment locations are already covered by crushed rock. NWN has committed to adding additional crushed rock where there will be heavy traffic. Dames & Moore has provided detailed recommendations for the earthwork associated with Miller Station improvements, (Exhibit 11, Section 7) including recommendations for excavation, fill placement and compaction, fill suitability, slope inclinations, subgrade preparation and protection, and dewatering. Dames & Moore provided additional recommendations concerning foundation support, lateral earth pressures, mat foundations, seismic design parameters, and dynamic load considerations. These recommendations will prevent significant adverse impact on soils at Miller Station.”

The new equipment proposed for amendment 9 is similar to that installed for amendments 4 and 8. The soil type and description of the conifer forest surrounding the Miller Station site was described in Exhibit 12 of the amendment 4 application. As in amendments 6 and 8, there will be very little earthwork at Miller Station for the new dehydration and gas quality monitoring equipment and no significant increased loading of soils. The soil at the Miller Station site is covered with crushed rock. There are no cooling towers or land application of liquid effluents proposed. The chemicals used in the dehydration and gas quality equipment are the same chemicals used in the existing equipment and are subject to the same spill prevention, containment and control (SPCC) plan already in place under DEQ requirements.

Erosion concerns at Miller Station are precluded by the fact that the site is already graded and covered with crushed rock, and by the engineering measures applicable under the Structural Standard, above.

NWN evaluated the soils along the proposed gathering line alignments. The soils vary in terms of drainage and erosion hazard, with perched groundwater present in some locations at depths of about 9 feet. Most of the gathering line alignments follow either existing logging roads or right of way for existing gathering lines.

The main potential soil impact from the gathering lines is erosion due to soil disturbance, loss of vegetation and changes to surface drainage patterns caused by construction activities. NWN is required to complete an erosion and sediment control plan to fulfill the requirements for an NPDES 1200-C permit (a federal permit). NWN's geotechnical consultant, Geoengineers, recommended erosion control measures including:

- sediment fence/straw bale enclosures,
- straw mulching and discing at locations adjacent to the road that have been affected,
- temporary sediment traps downstream of the intermittent stream crossing, and
- planting designated seed mixtures in affected areas.

Geoengineers also recommended that roadway areas be restored to their original grade, drainage condition and rock surface; revegetation in overland segments; reseeding if necessary; and sediment fences and check dams in place until affected areas are well vegetated. Geoengineers also recommended that overland corridors be constructed with waterbars adequately spaced so that surface drainage continues to natural drainage patterns, with regular maintenance of drainage facilities to ensure continued proper operation. NWN has committed to meeting the recommendations provided by their consultant. (amendment 9 application, exhibit 6 section 7).

The standard that applied to Amendments 4, 6 and 8 did not include impacts from retirement. However, NWN's retirement plan for the amendment 9 facilities is the same as for the Mist storage facility as a whole. The dehydration and gas treatment and monitoring equipment will be removed, similar to the existing gas treatment and compression equipment. The major impact on soils at Miller station is the foundation and crushed rock surface, which is not affected by this amendment. NWN will retire the gathering lines by cutting, capping and leaving the underground pipe in place, similar to retirement for its other pipelines. The addition of retirement impacts to the Soils standard does not invalidate previous findings of compliance with the standard.

Conclusion

The conditions recommended above for the Council's Structural standard will mitigate soil impacts under this standard as well. NWN commits to following the mitigation recommendations in section 7 of Exhibit 6 of the amendment application. That commitment will be a condition under OAR 345-027-0020(10). As so conditioned, the Council finds that the design, construction, operation and retirement of the facilities proposed in amendment 9 are not likely to result in significant adverse impacts to soils.

4. 345-022-0030 Land Use

Under the EFSC Land Use Standard, OAR 345-022-0030, the Council must determine whether the facility complies with the statewide planning goals adopted by the Land Conservation and Development Commission. The amendment includes new injection/withdrawal wells within the site, equipment improvements at Miller Station, and new gathering lines within the site.

Discussion

a. Miller Station Improvements

The Columbia County Department of Land Development Services has found that the improvements at Miller Station fall within the existing condition use permit for the facility. Regarding similar equipment upgrades in 2001, the county's Chief Planner stated :

“the original permit approval would encompass the modifications you are now seeking. You are not proposing to construct any new buildings and the use of the property is remaining the same. No new land use applications are required***.” (application for amendment, exhibit 7)

The county's Chief Planner has indicated that the currently proposed equipment upgrades at Miller Station should be viewed the same way, since NWN will not construct any new buildings and the use of the property will remain the same. Therefore, NWN has received all required local land use approval for the equipment upgrades at Miller Station.

b. Gathering Lines

For the gathering lines, NWN requested land use determination from the Council pursuant to ORS 469.504(1)(b). To issue the amendment, the Council must find that:

“The facility complies with applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and in effect on the date the application is submitted, and with any Land Conservation and Development Commission administrative rules and goals and any land use statutes directly applicable to the facility under ORS 197.646(3);”

The gathering lines are within the storage facility site, all of which is in the Primary Forest (PF-76) district in Columbia County.

(1) PF-76 Zoning District Criteria

The specific criteria for the PF-76 zone are set forth in CCZO sections 503 and 504.

CCZO Section 503

CCZO §503 states that:

“In the PF zone the following conditional uses and their accessory uses are permitted subject to the provisions of Section 504 and 505. A conditional use shall be reviewed according to the procedures provide in Section 1503.

- .2 *Operations conducted for the exploration, mining, and processing of...mineral or subsurface resources not permitted outright.*

The project is proposed for the purpose of processing natural gas, a subsurface resource. Therefore the project may be permitted as a conditional use.

CCZO Section 504

The specific criteria for this zone are set forth in CCZO 504.1 through 504.6, which require the following:

§504.1 *“The use is consistent with forest and farm uses and with the intent and purposes set forth in the Oregon Forest Practices Act.”*

The proposed use is consistent with forest and farm uses and will not unduly interfere with or detract from those uses. The pipes will be located underground and any disturbance of timberlands and timber management activities have been minimized. One of the largest timber owners in the area, Longview Fibre, has submitted a letter explaining that gas storage operations are “very compatible” with timber management and stating that Longview Fibre has “no objection to the current proposed expansion.”

The Oregon Forest Practices Act (ORS Chapter 527) includes the following:

“527.630 Policy (1)...it is declared to be the public policy of the State of Oregon to encourage economically efficient forest practices that assure the continuous growing and harvesting of forest tree species and the maintenance of forest land for such purposes as the leading use on privately owned land, consistent with sound management of soil, air, water, fish and wildlife resources and scenic resource within visually sensitive corridors as provided in ORS 527.755 that assures the continuous benefits of those resources for future generations of Oregonians.”

The proposed amendment does not interfere with this objective because it will not prevent the forest lands in the area from being used principally for forest management. The gathering line routes have been designed to minimize the impact on existing timberland. The construction and operation of the pipeline will be coordinated with forestry operations in the area, and the largest timber owner has submitted a letter of support. Therefore, the project meets the criterion in CCZO 504.1.

§504.2 *“The use will not significantly increase the cost, nor interfere with accepted forest management practices or farm uses on adjacent or nearby lands devoted to forest or farm use.”*

Many of the statements applied to CCZO 504.1 apply here as well. The impact on nearby forestry operations will be minimal. No lines are proposed on farm lands. Longview Fibre, one of the largest timber owners in the area, submitted a letter in connection with Amendment 6 in 1999 stating that gas operations are “very compatible” with timber management. In its Staff Report for CU 2-97, the Columbia County Planning Commission found that the proposed use will not interfere with farm or forest uses on adjacent lands if appropriate measures are taken to prevent fire from spreading to adjacent forests. NWN has submitted a letter from the Mist-Birkenfeld Fire Protection District in support of the proposed project. Therefore, the project meets the criterion in CCZO 504.2.

§504.3 *“The use shall be limited to a site no larger than necessary to accommodate the activity and, as such will not materially alter the stability of the overall land use pattern*

of the area or substantially limit or impair the permitted uses of surrounding properties. If necessary, measures will be taken to minimize potential negative effects on adjacent forest lands.”

The gathering lines are locationally dependent. They must connect from the locationally dependent well sites (to access the underground pool) to existing pipeline facilities for processing through Miller Station. The gathering line maintenance easements are the minimum necessary to protect the pipeline from invasive root vegetation and to enable access for maintenance activities.

The gathering lines are located within the existing site boundary for storage operations and will not alter the land use pattern in any way or have off-site impacts. Therefore, the project meets the criterion in CCZO 504.3.

§504.4 *“The use does not constitute an unnecessary fire hazard, and provides for fire safety measures in planning, design, construction, and operation.”*

NWN has operated the gas storage reservoirs since 1988 without causing any fires or other hazards. The wellhead and pipeline facilities have numerous safety features, including relief valves and automatic shutdown systems. In addition, trained NWN personnel monitor the facilities from Miller Station. The OPUC has found NWN to be in compliance with pipeline safety regulations of the U.S. Department of Transportation (49 CFR 192). NWN has also submitted a letter from the Mist-Birkenfeld Rural Fire District supporting the project (application for amendment, exhibit 13). Therefore the criterion of CCZO 504.4 is met.

§504.5 *“Public utilities are to develop or utilize rights-of-way that have the least adverse impact on forest resources. Existing rights-of-way are to be utilized whenever possible.”*

There are few public rights-of-way within the Mist site. NWN has proposed to utilize where possible existing private forest roads and private rights-of-way. The Schlicker Pool gathering line will be constructed entirely along the existing forest road, which will be used for construction and maintenance access. The Schlicker Pool gathering lines will then interconnect with the existing Busch Valve Station. The Busch Pool gathering line will also use existing private roads for construction and maintenance access for the majority of the route. The route must take a cross country route for approximately 600 feet in order to connect the gathering line from the Busch Pool well site to the tie-in to the existing pipeline right-of-way. Therefore the project meets the criterion of CCZO 504.5.

§504.6 *“Development within major and peripheral big game ranges shall be sited to minimize the impact on big game habitat. To minimize the impact, structures shall: be located near existing roads; be as close as possible to existing structures on adjoining lots; and be clustered where several structures are proposed.”*

The Mist site is located within a big game habitat area. Columbia County found in CU-2-97 that the NWN storage operations in the Mist Field area will not unduly impact big game habitat. NWN does not propose any above ground “structures,” as the term is used in CCZO §504.6, other than wellhead facilities. The gathering lines will be located adjacent to existing roads as possible and will be buried. The area will be graded and revegetated and should not interfere with the range. NWN will plant vegetation within the gathering line easement that will provide forage for big game species. The project meets the criterion of CCZO 504.6

CCZO Section 506

- “.1 The minimum lot for parcel size for new land divisions shall be 76 acres. ****
- “.2 The minimum lot or parcel width and minimum lot or parcel depth shall be 100 feet*
- “.3 The minimum front yard, minimum rear yard and minimum side yards shall all be 50 feet.*
- “.4 There shall be no height limitations on buildings.*

No land division is requested in this amendment No.9 request. To the extent yard requirements apply to underground facilities, the gathering lines will be well within the established setback requirements.

(2) General Criteria Applicable to All Conditional Uses

CCZO Section 1503 contains general criteria for all conditional uses. CCZO § 1503.5 states:

“The Commission may grant a Conditional Use Permit after conducting a public hearing, provided the applicant provides evidence substantiating that all the requirements of this ordinance relative to the proposed use are satisfied and demonstrates the proposed use also satisfies the following criteria:

(a) CCZO § 1503.5(A): *“ The use is listed as a Conditional Use in the zone which is currently applied to the site.”*

For the PF-76 zone CCZO § 503.2 lists “mining and processing of . . . mineral or subsurface resources not permitted outright” under conditional uses, and § 503.6 lists “utility facilities.”

(b) CCZO § 1503.5(B): *“The use meets the specific criteria established in the underlying zone.”*

The specific criteria for the PF-76 zone are addressed in subsection (1) above.

(c) CCZO § 1503.5(C): *“The characteristics of the site are suitable for the proposed use considering the size, shape, location, topography, existence of improvements, and natural features.”*

The choice of a site for the gas storage reservoir was dictated by the presence of a unique underground formation suitable for natural gas storage. The proposed gathering lines are within the approved site. Moreover, the gathering line routes are locationally dependent and follow the existing roads and reasonably direct routes to interconnect well sites and existing pipeline facilities.

(d) CCZO § 1503.5(D): *“The site and proposed development is timely, considering the adequacy of transportation systems, public facilities, and services existing or planned for the area affected by the use.”*

The only transportation systems in the area are State Highway 202 and private roads used mostly for log trucking. The gathering lines will use the existing logging roads to the extent practical and will not require any additional transportation systems. No additional facilities or services will be required by the new wells and gathering lines. As described in section IV.A. of this order, the amendment meets the Council’s Public Services Standard, which requires that the amendment does not adversely impact public and private service providers’ ability to provide essential services such as water, police and fire protection, and traffic safety.

(e) CCZO § 1503.5(E) *“The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs, or precludes the use of surrounding properties for the primary uses listed in the underlying district.”*

The primary use listed for the PF-76 zone is forest use, or timber production. The proposed gathering lines will not impair or preclude the use of surrounding properties for this use because it will not affect other property owners’ abilities to use their property, and will not have any effect on properties outside the site. The existing gas storage activities are carried out without conflicts with on-site or nearby timber owners. NWN has submitted letters of support from nearby timber owners.

(f) CCZO § 1503.5(F) *“The proposal satisfies the goals and policies of the Comprehensive Plan which apply to the proposed use.”*

The goals and policies from the Columbia County Comprehensive Plan include the Forest Lands goal and policy, the Energy Sources goal, the Agricultural goal and related policies, and the Air, Land and Water Resources goal.

i) Forest Lands Goal and Policy

The Forest Lands Goal is: “To conserve forest lands for forest uses.” Forest Lands Policy 1 states that: “It shall be the policy of Columbia County to conserve forest lands for forest uses, including:

- A. The production of trees and the processing of forest products;
- B. Open space;
- C. Buffers from noise;
- D. Visual separation from conflicting uses;
- E. Watershed protection;
- F. Wildlife and fisheries habitat;
- G. Soils protection from wind and water;
- H. Maintenance of clean air and water;
- I. Compatible recreational activities; and
- J. Grazing land for livestock.

The gathering lines will be located underground and will not impact open space, existing noise buffers or recreational opportunities. Findings under the Council’s Fish and Wildlife Habitat Standard OAR 345-022-0060 (*see* section IV.A.2 of this order) ensure protection of watershed and fish and wildlife habitat. Findings under the Council’s Soils Standard OAR 345-022-0022 (*see* section IV.A.3 of this order) ensure soil protection. The gathering lines will not have any air impacts and are not located in or near grazing land. In connection with Amendment No 6 to this site certificate, NWN submitted a letter from Longview Fibre stating that “the exploration, production and underground storage of natural gas has proven to be a very compatible land use with our forest management operations.”

ii) Energy Sources Goal

The Energy Sources goal is “To protect deposits of energy materials in the County and prevent injury to surrounding lands and residents.” The comprehensive plan finds that:

“Potential conflicting uses for natural gas wells in the County are minimized by the controls and regulations imposed by ODOGAMI (Oregon Department of Geology and Mineral Industries). They are also minimized since wells are located in remote forested areas and surrounding property owners share in the profits of producing wells. The county will conserve forest lands for forest uses and allow operations conducted for the exploration, mining, and processing of subsurface resources as a conditional use. The County will rely on DOGAMI to insure future protection of resources and surrounding lands.”

The county has previously approved gas storage activities at Mist as a way to prolong the useful life of the gas fields. The storage operations utilize the reservoirs that have been depleted of native gas from production to store natural gas for customers. The gathering lines are essential to the use of the reservoirs and wells for energy storage. The Schlicker Pool well site has received DOGAMI approval, and DOGAMI approval of the Busch well site is pending. The gathering lines’ underground location minimizes any conflict between the gas storage use and the surface operations of the timber operator.

iii) Air, Land and Water Resources Goal

The county’s goal is *“To maintain and improve land resources and the quality of the air and water of the County.”* The county implements this goal by relying on state and federal agencies to require compliance with environmental regulations. The gathering lines have no effect on air quality and use no water except for the small amount used in construction and testing. Operations at Miller Station are subject to air permitting requirements of DEQ under a delegation from the federal government.

(g) CCZO § 1503.5(G): *“The proposal will not create any hazardous conditions.”*

NWN has taken suitable precautions to detect and control fire and to prevent its spread to surrounding forest lands. NWN has considered safety issues including soil stability and seismic issues in accordance with EFSC’s Structural and Soil standards. NWN has operated the Mist storage facility since 1989 without any fire incident or any incident requiring action by local fire districts. The Mist-Birkenfeld fire district has provided a letter (exhibit 13 of the amendment application) stating that they have no objection to the project going ahead as scheduled. Testimony from the OPUC in support of Mist storage facility site certificate amendments 4 and 6 and the South Mist Pipeline consistently indicate that NWN complies with OPUC and federal safety regulations. Therefore the proposal for amendment 9 meets this criterion.

(h) CCZO § 1503.6: *“The Commission may require the Conditional Use be subject to a site design review by the Design Review Board or Planning Commission.”*

Columbia County has not recommended a site design review for this amendment. The gathering lines will be underground, and construction areas will be backfilled and revegetated. Minor valve stations located at the well head locations are the only aboveground facilities associated with the gathering lines. As noted above, the county’s chief planner has stated that the existing conditional use permit includes equipment upgrades at Miller Station since no new buildings are

proposed and the use of the property is unchanged, so that no new site design review is required.

(3) Regulations directly applicable under ORS 197.646(3).

In 1994, the Land Use and Development Commission (LCDC) adopted new land use rules at OAR 660 Division 6, amending the planning goals for forest zones. Columbia County's acknowledged comprehensive plan does not implement the 1994 revision to the LCDC rules. Therefore, under ORS 197.646(3), the amended LCDC rules are directly applicable to the local government's land use decisions.

The directly applicable LCDC rules are as follows:

1. 660-006-0025(1)

"Uses Authorized in Forest Zones

(1) Goal 4 requires that forest land be conserved. Forest lands are conserved by adopting and applying comprehensive plan provisions and zoning regulations consistent with the goals and this rule. In addition to forest practices and operations and uses auxiliary to forest practices, as set forth in ORS 527.722, the Commission has determined that five general types of uses, as set forth in the goal, may be allowed in the forest environment, subject to the standards in the goal and in this rule. These general types of uses are:

** * * (c) Locationally dependent uses, such as communication towers, mineral and aggregate resources, etc."*

The amendment is a use related to the mineral development project at Mist Field, and is locationally dependent because the location is dictated by the presence of a unique underground formation suitable for natural gas storage. The gathering lines are locationally dependent because they must interconnect the well head with the existing pipeline system for processing at Miller station. The amendment is the kind of non-forest use contemplated in the rule.

2. OAR 660-006-0025(3)

"(3) The following uses may be allowed outright on forest lands:
(m) Exploration for and production of geothermal, gas, oil, and other associated hydrocarbons, including the placement and operation of compressors, separators and other customary production equipment for an individual well adjacent to the well head;"

The storage facility is a way to prolong the useful life of previously productive gas fields. The storage operations utilize the reservoirs that have been depleted of native gas from production to

store natural gas for customers. The gathering lines are essential to the use of the reservoirs and interconnect the well with the compressors, separators and other equipment at Miller Station.

3. OAR 660-006-0025(4)

“(4) The following uses may be allowed on forest lands subject to the review standards in section (5) of this rule:

(p) New electric transmission lines with right of way widths of up to 100 feet as specified in ORS 772.210. New distribution lines (e.g., gas, oil, geothermal, telephone, fiber optic cable) with rights-of-way 50 feet or less in width;”

The gathering lines have permanent right-of-way less than 50 feet, and therefore may be allowed on forest lands subject to compliance with subsection (5) of the rule, which is shown below.

4. OAR 660-006-0025(5)

“ A use authorized by section (4) of this rule may be allowed provided the following requirements or their equivalent are met. These requirements are designed to make the use compatible with forest operations and agriculture and to conserve values found on forest lands:

(a) The proposed use will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands;”

The proposed use is consistent with forest uses and will not unduly interfere with or detract from those uses. The gathering lines will be located underground, and any disturbance of timberlands and timber management activities has been minimized. NWN has operated the Mist storage facility on timberland since 1988. One of the largest timber owners in the area, Longview Fibre, submitted a letter in connection with Amendment 6 of the site certificate, stating that gas storage operations are “very compatible” with timber management. No development on farm land is proposed.

“(b) The proposed use will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel;”

The use will not result in an increased potential for fire on forest lands. The applicant has operated the Bruer/Flora underground natural gas storage reservoirs since 1988 and the Calvin Creek storage area since 1997 without causing any fires or other hazards. The wellhead and pipeline facilities have numerous safety features, including relief valves and automatic shutdown systems. In addition, the facilities are monitored from the “nerve center” at Miller Station by the applicant’s trained personnel. OPUC testified in connection with amendment 4 and 6 to the site certificate that NWN has a good record of compliance with safety regulations of the U.S.

Department of Transportation (49 CFR part 192), and they reiterated this testimony in support of NWN's South Mist Pipeline Extension. The Mist/Birkenfield fire department has also written in support of this amendment.

“(c) A written statement recorded with the deed or written contract with the county or its equivalent is obtained from the land owner which recognizes the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in subsections (4)(e), (l), (r), (s) and (v) of this rule.”

The gathering lines are within the approved site of the Calvin Creek storage area, which NWN operates under a lease with the owner, Longview Fibre. Columbia County has found that “the recorded leases between the applicant and adjacent and nearby property owners recognize their rights to conduct forest operations with regard for and without unnecessary harm to forest and agricultural operations***”. CU 53-96, finding 18 (application for amendment, exhibit 7).

5. OAR 660-006-0025(6)

“ Nothing in this rule relieves governing bodies from complying with other requirement contained in the comprehensive plan or implementing ordinances such as the requirements addressing other resource values (e.g., Goal 5) which exist on forest lands.”

NWN has demonstrated compliance with the applicable provisions of Columbia County's comprehensive plan and zoning ordinance. See sections (1) and (2) above.

6. OAR 660-006-0029

“Siting Standards for Dwellings and Structures in Forest Zones”

The following siting criteria or their equivalent shall apply to all new dwellings and structures in forest and agriculture/forest zones. These criteria are designed to make such uses compatible with forest operations and agriculture, to minimize wildfire hazards and risks and to conserve values found on forest lands. A governing body shall consider the criteria in this rule together with the requirements OAR 660-006-0035 to identify the building site.”

No dwelling is proposed, and the only structures are the underground gathering lines. However, findings are presented below for the sake of completeness.

7. OAR 660-006-0029

“(1) Dwellings and structures shall be sited on the parcel so that:

(a) They have the least impact on nearby or adjoining forest or agricultural lands;"

The gathering lines will be located underground, except for the connection with the wells. They will not have any impacts on nearby forest lands. No dwellings are proposed.

8. OAR 660-006-0029

"(b) The siting ensures that adverse impacts on forest operations and accepted farming practices on the tract will be minimized;"

The gathering lines will be located underground, and will not have significant adverse impacts on forest operations in the timber lands where they are located.

9. OAR 660-006-0029

"(c) The amount of forest lands used to site access roads, service corridors, the dwelling and structures is minimized; and"

As noted above, NWN will use logging roads to the extent that those roads provide a reasonably direct route from the well head to the interconnecting pipeline to Miller station. The size of the permanent easement is the minimum needed to preclude damage to the pipes.

10. OAR 660-006-0029

"(d) The risks associated with wildfire are minimized."

See findings of compliance with §CCZO 1503.5(g), above.

11. OAR 660-006-0029

"(2) Siting criteria satisfying section (1) of this rule may include setbacks from adjoining properties, clustering near or among existing structures, siting close to existing roads and siting on that portion of the parcel least suited for growing trees."

As noted above, NWN has committed to meeting setback requirements of the CCZO to the extent that they apply. The gathering lines use logging roads to the extent practical but are locationally dependent because they must connect the well head to the interconnecting pipelines to Miller Station.

12. 660-006-0035

"Fire Siting Standards for Dwellings and Structures

The following fire siting standards or their equivalent shall apply to new dwelling or structures in a forest or agriculture/forest zone:

(1) The dwelling shall be located upon a parcel within a fire protection district or shall be provided with residential fire protection by contract. If the dwelling is not within a fire protection district, the applicant shall provide evidence that the applicant has asked to be included within the nearest such district. If the governing body determines that inclusion within a fire protection district or contracting for residential fire protection is impracticable, the governing body may provide an alternative means for protecting the dwelling from fire hazards. The means selected may include a fire sprinkling system, onsite equipment and water storage or other methods that are reasonable, given the site conditions. If a water supply is required for fire protection, it shall be a swimming pool, pond, lake, or similar body of water that at all times contains at least 4,000 gallons or a stream that has a continuous year round flow of at least one cubic foot per second. The applicant shall provide verification from the Water Resources Department that any permits or registrations required for water diversion or storage have been obtained or that permits or registrations are not required for the use. Road access shall be provided to within 15 feet of the water's edge for firefighting pumping units. The road access shall accommodate the turnaround of firefighting equipment during the fires season. Permanent signs shall be posted along the access route to indicate the location of the emergency water source.

(2) Road access to the dwelling shall meet road design standards described in OAR 660-006-0040.

(3) The owners of the dwellings and structures shall maintain a primary fuel-free break area surrounding all structures and clear and maintain a secondary fuel-free break area in accordance with the provisions in "Recommended Fire Siting Standards for Dwellings and Structures and Fire Safety Design Standards for Roads" dated March 1, 1991 and published by the Oregon Department of Forestry.

(4) The dwelling shall have a fire retardant roof.

(5) The dwelling shall not be sited on a slope of greater than 40 percent.

(6) If the dwelling has a chimney or chimneys, each chimney shall have a spark arrester."

Subsections 1,2,4,5 and 6 of this provision apply only to “dwellings.” NWN does not propose to construct any dwellings, so these provisions are not applicable. Subsection 3 potentially applies, although Columbia County did not find it applicable in issuing the conditional use permit for the Calvin Creek Storage area, of which this amendment is a part. In any case, the gathering lines meet the fire break requirement because they will be underground within a cleared right-of-way.

13. 660-006-0040

“Fire Safety Design Standards for Roads

The governing body shall establish road design standards, except for private roads and bridges accessing only commercial forest uses, which ensure that public roads, bridges, private roads and driveways are constructed so as to provide adequate access for fire fighting equipment. Such standards shall address maximum grade, road width, turning radius, road surface, bridge design, culverts, and road access taking into consideration seasonal weather conditions. The governing body shall consult with the appropriate Rural Fire Protection District and Forest Protection District in establishing these standards.”

This provision is applicable to the local government rather than directly to NWN. Moreover, NWN is proposing no roads. In any case, the letter from the Mist-Birkenfeld fire district indicates that NWN has consistently worked well with the fire district in constructing and operating the Mist storage facility.

Summary - Directly Applicable LCDC Statutes and Rules: The applicant has shown compliance with LCDC statutes and rules directly applicable to the facility. ODOE requested comment from DLCD and Columbia County on this application and they indicated no other directly applicable rules.

(4) CCZO 1170: Riparian Area Protection

CCZO § 1170 provides for the protection of the riparian areas adjacent to rivers, streams and lakes in the county. Section G of the application for amendment addresses the Council’s Fish and Wildlife Habitat standard, and states that there are no wetlands or perennial streams in the project area. The study area for the gathering line at the Busch pool does include an ephemeral non-fish bearing stream, which is characterized as category 6 (the lowest category) under the ODFW habitat mitigation policy, and does not provide important riparian habitat. Therefore there are no riparian areas adjacent to rivers or streams and CCZO §1170 does not apply.

(5) Comments by Columbia County Land Development Services

Columbia County issued its Final Order CU 04-09 granting the conditional use permit for the injection/withdrawal well at the Busch Pool on October 14, 2003. For the gathering lines, the county's Land Development Services commented that NWN had identified the correct applicable substantive criteria and analyzed them correctly³.

Conclusion

NWN has obtained the required local land use approval for the Miller Station improvements and for the injection/withdrawal wells. The gathering lines comply with applicable substantive criteria from Columbia County's comprehensive plan for forest zones, as shown in sections (1) and (2) of this discussion. The gathering lines also comply with directly applicable LCDC rules for forest zones, as shown in section (3). No new conditions are recommended.

5. 345-022-0040 Protected Areas

This standard prohibits the siting of an energy facility in any of the protected areas listed in OAR 345-022-0040(1). The Council must find that the design, construction and operation of the facility located outside these areas is not likely to result in significant adverse impact to any listed protected area.

Discussion

The Mist facility is not located in a listed protected area. The proposed amendment does not change the site. In its orders approving amendments 6 and 8, the Council stated:

“The nearest listed protected area is an Oregon State University research forest located about five miles northwest of the storage facility. All other protected areas are more than ten miles from the storage facility. The facility's most visible feature is the Miller Station, and no significant changes to Miller Station are proposed, beyond what was permitted by Amendment #4 in 1997***

***The impacts of construction (such as noise and land disturbance) will be confined to the immediate vicinity of Miller Station and the sites of the new gathering lines, or will be short-term and of a small magnitude (such as construction-related traffic). For these reasons, construction would not adversely affect any protected area. Likewise, operation of the expanded facility would not change certain impacts (such as water consumption and wastewater generation at Miller Station) while other impacts (such as noise from compressor operation and maintenance of clear pipeline rights-of-way) would be confined to the immediate area and would not affect even the closest protected area.”

NWN reviewed information available from the Office of Energy, ODFW, and the Oregon Natural Heritage program and found that the only potentially affected protected areas were the same ones identified in those earlier amendments. The nearest two protected areas remain an OSU research forest located 5 miles away and the Jewell Wildlife Refuge located 12 miles away. The facilities proposed in amendment 9 are gathering lines and gas treatment equipment at Miller Station, similar to the facilities currently in operation. Therefore, the Council's prior

³ Personal communication, Mr. Hoelscher, Columbia County LDS to Adam Bless, OOE, 10/14/2003

conclusions regarding construction and operation impacts remain appropriate. The compressor that NWN installed in 2001 under amendment 8 would run for an estimated 84 additional days per year, increasing air emissions slightly. However, the expected emissions are still within the limits of DEQ's air quality permit. The increased operation will not adversely affect visibility in protected areas.

The Council amended OAR 345-022-0040 in 2003, updating cross references to federal and state statutes and regulations. However, the update does not add new protected areas that are closer to the Mist facility than the OSU research forest or the elk refuge mentioned above. Therefore the rule change does not affect prior findings of compliance.

Conclusion

Neither the site nor the list of potentially affected protected areas have changed since the approval of Amendments 6 and 8. The Council finds that the modifications in amendment 9 are not likely to have an adverse impact on any protected areas listed in this standard. No new conditions are required.

6. 345-022-0050 Retirement and Financial Assurance

The standard requires the Council to 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; and
- (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.

Discussion

This standard was not in effect when the Council approved the site certificate. The first amendment to which the Retirement standard applied was 1997 amendment 4, which included installation of a new turbine compressor, gas treatment facilities at Miller station, gathering lines in the Calvin Creek area, and two 16-inch pipes connecting the Calvin Creek area to Miller station. Amendment 6 included additional gathering lines and associated equipment upgrades. In 1999, NWN provided a retirement plan in support of Amendment 6 that described the retirement process for the entire facility.

Because the modifications proposed in amendment 9 involve the same type of equipment installed in amendments 4, 6 and 8, NWN relies on the retirement plan documented in the application for amendment 6 and approved by the Council in its order approving amendment 6. Under that plan, NWN would remove the process equipment for sale as equipment or scrap. NWN would dispose of hazardous materials in accordance with applicable state regulations (DEQ). The buildings at Miller station are prefabricated steel structures mounted on a concrete slab. NWN would disassemble the buildings and remove the slab. If necessary NWN would revegetate the area to prevent erosion and encourage habitat development. Underground pipelines are not typically removed, but are purged to ensure no hazardous material remains, then

cut and capped and left underground. The wells are under DOGAMI jurisdiction and would be retired in accordance with DOGAMI's requirements.

NW Natural estimates that the restoration costs attributable to Amendment 9 are approximately \$500,000 in 2003 dollars. This estimate is consistent with the \$400,000 estimate that the Council approved in 2001 for Amendment 8. NWN expects to offset this cost by an estimated \$1.65 million in salvage value. However, the Council does not generally give credit for salvage value because there is no assurance of what the actual value will be, especially since NWN describes the useful life as "indefinite".

Mandatory condition OAR 345-027-0020(8) requires that NWN provide a bond or letter of credit to secure the retirement cost. In 2001, NWN estimated that the restoration cost attributable to amendment 8 was approximately \$400,000 in 2001 dollars. NWN secured a bond in this amount, which the Council approved in October 2001. In August 2003 NWN obtained a bond for \$700,000 for retirement of the South Mist Pipeline Extension. NWN's annual report for 2002 shows a net operating revenue of \$287 million, a four percent increase over 2001. NWN has committed to either updating the bond from Amendment 8 or obtaining a new one. Past experience and NWN's annual financial statements indicate that NWN can obtain the required bond for amendment 9.

Conclusion

The Council finds that NWN can restore the site adequately to a useful non-hazardous condition, and is reasonably likely to secure a bond or letter of credit to secure the site restoration costs resulting from amendment 9. The mandatory condition at OAR 345-027-0020(8) shall apply.

7. 345-022-0060 Fish and Wildlife Habitat

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

Discussion

OAR 635-415-0030 describes six categories of habitat in order of their value. The rule establishes mitigation goals and corresponding implementation standards for each habitat category. Category 1 is habitat of greatest value, and category 6 is habitat of least value.

Amendment 9 involves the installation and operation of new equipment at Miller station and new injection/withdrawal wells and associated gathering lines on land already within the site, in the Calvin Creek area.

Impacts at Miller Station are not expected to be significant. In previous amendments, NWN classified Miller Station as Category 6 (or category 4 when there were only 4 categories) due to the industrial nature of the site. The area inside the fence is void of vegetation, paved with gravel, and includes several buildings. In its order approving amendment 6, the Council stated that:

"Activities at Miller Station will have an insignificant effect on fish and wildlife habitat, as they will occur adjacent to existing structures within the fenced area that has already been cleared of vegetation."

This assessment remains appropriate for amendment 9.

The gathering line alignments do have potential for impact on fish and wildlife habitat. The impacts are primarily construction impacts. The gathering line alignments are on land already within the site. However, since previous studies may not have covered the alignment for these new lines, NWN performed field surveys in June 2003 over a 200-foot wide study corridor.

NWN identified four habitat types in the study area: (1) conifer forest (2) early seral forest (3) recent clearcuts and (4) non-fish bearing ephemeral stream. In its application, NWN classified the forest and clearcut zones as habitat category 4, and the ephemeral stream as category 6. In its comments, ODFW stated that all habitat zones should be classified as category 4⁴. At a site inspection with ODOE staff, NWN concurred that the ephemeral stream is category 4⁵. In any case, ODFW's comments state that the change in category has no effect on mitigation, since NWN intends to meet category 4 mitigation goals along the entire alignment. In classifying the habitat along the gathering line alignment, NWN and ODFW considered the fact that all of the property is owned by Longview Fibre and is managed for timber operations.

The ODFW mitigation goal for category 4 is "no net loss of habitat quantity or quality" and calls for reliable mitigation either in-kind or out-of-kind and in-proximity or out-of-proximity.

NWN has minimized impact by locating most of the gathering lines along existing forest roads or adjacent to existing gathering lines. NWN will use a permanent corridor that is 20 feet wide. NWN will use an additional 20 feet of construction easement, for a total of 40 feet (including the forest road in locations where the alignment follows one). NWN will need two temporary staging areas for the Busch gathering line, each approximately 100' x 400'. For the Schlicker gathering line, NWN will need one temporary staging area of the same size. Mitigation measures described by NWN include:

- i. NWN will minimize removal of vegetation to the extent practical.
- ii. Where a new gathering line is installed adjacent to an existing one, the permanent easement will be only 10 feet wider than the existing one.
- iii. NWN will use the erosion control measures required for the NPDES 1200-C (a federal permit) and Best Management Practices (BMP's) to prevent erosion of soil into the ephemeral stream channel.
- iv. Following construction, NWN will allow and encourage native vegetation to grow back in the temporary construction easement and staging areas.

Thus, there will be no net loss of habitat quantity of quality in the temporary construction easements and staging areas. ODOE recommends that these measures be made conditions.

In the permanent easement, NWN will prevent growth of trees that could damage the pipeline. However, after construction NWN will allow and encourage native vegetation that would provide forage for big game species. This is acceptable because the ODFW mitigation standard for category 4 allows for out-of-kind mitigation. Impacts from operation and maintenance are minimal and are incremental since the area contains several wells and gathering lines already. Operators visit the well site daily and survey the gathering lines on foot twice a year. Retirement

⁴ Email from Patty Snow, ODFW to Adam Bless, ODOE, October 16, 2003

⁵ Joint site inspection by ODOE and NWN, October 21, 2003

will have no impact because the pipe will be purged, cut and capped, and abandoned in place. To meet the habitat mitigation goal for impacts to the permanent easement, NWN stated that:

- i. Where revegetation is necessary, NWN will plant vegetation that provides forage for big game species.
- ii. 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.
- iii. Crews will use hand tools to control [right-of-way] vegetation at stream crossings in the permanent easement.

Conclusion

For the new equipment installed at Miller station, the impact on habitat would not be appreciably different from what it is now. No mitigation is required because the site is already highly developed. For the gathering lines, the measures listed above are adequate to meet the mitigation goal for Category 4 habitat. With these measures incorporated as conditions, the Council finds that amendment 9 meets its Fish and Wildlife Habitat standard.

8. 345-022-0070 Threatened and Endangered Species

To issue the amendment, the Council must find that:

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

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

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

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

Discussion

NWN proposes to install new equipment at Miller Station and new injection/withdrawal wells and associated gathering lines on land within the site. NWN consulted the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service, and the Oregon Natural Heritage Information Center. One threatened plant species (Nelson's checker mallow) and three listed wildlife species (Columbia white-tailed deer, northern spotted owl, and bald eagle) were identified as potentially occurring in the project area. NWN confirmed by field studies that the project area does not include suitable habitat to support the presence of Nelson's checker mallow, Columbia white-tailed deer or northern spotted owl.

Field biologists did find a bald eagle nest located in a mature Douglas-fir at the edge of a semi-mature forest stand. The project is approximately 350 feet from the nest at its closest point.

The USFWS has applied guidelines for the protection of bald eagle nests. Construction activities should be limited to a window between September 1 and December 31. Some flexibility is allowed if a USFWS biologist confirms that the eagle is not present. The guidelines also call for a 300 buffer between construction activities and the nest. NWN has committed to confining construction of the Busch gathering line and well to this seasonal window and avoiding any activity within the 300 foot buffer around the nest.

Conclusion

The NWN commitment to adhere to the USFWS guidelines for the protection of the bald eagle nest is considered a condition of approval. As so conditioned, the Council finds that amendment 9 is not likely to cause a significant reduction in the likelihood of the survival or recovery of any threatened or endangered species.

9. 345-022-0080 Scenic and Aesthetic Values

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

Discussion

There is no federally owned land in the vicinity of the gas storage facility. The applicable local land use plan is Columbia County's Comprehensive Plan. It contains an inventory of five "County Scenic Resources." The county has not updated this inventory since 1999, when the Council approved amendment 6 to the site certificate. Therefore, the findings in that amendment still apply.

The plan identifies portions of Highway 47 as a designated scenic highway. Miller Station is visible from two points along Highway 47. The gas treatment equipment proposed in amendment 9 will be next to adjacent equipment and will not change the overall appearance of the station, and in any case are not visible from the highway. Therefore, the amendment will not have a significant adverse impact on important scenic values. The gathering lines proposed in amendment 9 are on land already within the site. They are in forested land that is managed for timber production. Vegetation disturbance necessary for gathering line construction will not be visible from the highway, and after construction the gathering lines will be underground. NWN will restore vegetation in accordance with conditions under the Habitat standard.

Conclusion

The Council finds that amendment 9 meets the Scenic and Aesthetic standard. No new conditions are recommended.

10. 345-022-0090 Historic, Cultural and Archaeological Resources

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

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

Discussion

The amendment includes equipment upgrades at Miller station and installation of new gathering lines on land within the facility site. For the equipment upgrades at Miller station, NWN has relied on findings under amendments 6 and 8, in which the Council found that there was no adverse impact to cultural, historic or archeological resources, based on surveys done by NWN and on the fact that Miller station is already fully developed.

For the gathering line routes, NWN reviewed prior archeological studies done in connection with 1997 amendment 4 and with the South Mist Feeder pipeline, which was constructed in 1987 and expanded in 1999. NWN notes that the pipeline corridor studies did result in the identification of a number of archeological sites; these were largely confined to the floor of the Nehalem valley and other areas south of the gas storage area being reviewed here.

NWN also conducted a search of historic records and found that one historic homestead was located within one half mile of the proposed gathering lines. Archeologists retained by NWN stated that the homesite would likely have been located well downslope of the nearest proposed project component, closer to the Nehalem River valley.

NWN conducted a field survey in June 2003. All of the Schlicker gathering line and 0.5 miles of the Busch gathering line routes are along existing logging roads or existing gathering line right of way. In these areas, visibility was good. For the segment of the Busch gathering line that is overland, the steep slopes, dense vegetation and large tree falls made ground visibility poor. No cultural resources were identified in the area of the proposed amendment. NWN's archeologists stated that the proposed gathering lines and well locations lie within areas of low archeological sensitivity. As a result, they stated that no additional investigation was recommended.

The site certificate includes the following condition from 1997 amendment 4:

“***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(1)(c), NNG 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.”

In its application for amendment 9, NWN committed to applying this condition to amendment 9. However, the original amendment 4 condition included a statement that a qualified archeologist

would monitor all grading and excavation activities associated with boring operations. There are no boring operations scheduled for amendment 9, and no recommendation to have an archeologist present full time during construction. However, NWN inspection staff with training in the identification of potential cultural resources will monitor construction. If any artifacts that might qualify as archeological objects are identified, then the above condition will apply.

Comments by Oregon State Historic Preservation Officer (SHPO): The SHPO commented in writing on September 22, 2003⁶. The SHPO commented that the maps and survey descriptions were not sufficient for an adequate review of the cultural surveys, and recommended that no ground disturbing activities take place without SHPO concurrence. However, after reviewing additional information provided to the SHPO by NWN's archeological consultant, the SHPO contacted ODOE and stated that NWN had performed adequate surveys and that there was no objection to the proposed construction.

Conclusion

The Council finds that the amendment meets the Historic, Cultural and Archeological Resource standard. The condition from amendment 4 cited above applies to amendment 9 as well.

11. 345-022-0100 Recreation

To issue the amendment, the Council must find that the design, construction and operation of a facility, taking into account mitigation, are not likely to result in a significant adverse impact to important recreational opportunities in the analysis area. The Council shall consider the following factors in judging the importance of a recreational opportunity:

- (a) Any special designation or management of the location;
- (b) The degree of demand;
- (c) Outstanding or unusual qualities;
- (d) Availability or rareness;
- (e) Irreplaceability or irretrievability of the opportunity.

Discussion

NWN evaluated recreation impacts within a five-mile radius of the storage facility site in 1999 in support of amendment 6. Recreation opportunities included sites and facilities identified by Columbia County and fishing and hunting throughout the area. In the 1999 order approving amendment 6, the Council stated that:

“The Columbia County Forests, Parks and Recreation Master Plan identifies 20 county parks, forests, forest/parks and boat dock facilities and another 20 public and private facilities that provide recreational opportunities. None are within five miles of the proposed site of the gas storage facility expansion***.

The gas storage project is within a major big game habitat area. The area is used for hunting elk, deer, pheasant, grouse and bear. The project could result in a localized, short-term impact to hunting during construction, and some habitat loss or alteration over a longer term. However, the project site does not provide recreation opportunities that are

⁶ Letter from Dennis Griffin, SHPO to Adam Bless, ODOE, September 22, 2003

unusual or unique, and the Department does not consider these impacts to recreation to be significant. Miller Station is not adjacent to a river or stream and the proposed locations for the gathering lines are not near and do not cross any river or stream. Thus, the proposed gas storage facility expansion will have no effect on streams or fishing activity.

For these reasons, the gas storage facility expansion is not likely to result in a significant adverse impact to important recreation opportunities.”

NWN reviewed the area within a mile of the underground storage facility site, and found that no new recreational activities have developed within that area. The gathering lines do not affect any fish bearing stream and have been shown to have no effect on fish habitat. Therefore the above findings from amendment 6 remain appropriate for amendment 9.

Conclusion

In approving amendment 6, the Council found that the NWN Phase 3 storage expansion did not result in a significant adverse impact to important recreational opportunities in the area. Amendment 9 affects the same area. No new recreational resources or potential impacts on existing recreational resources have been identified since then. Therefore the Council concludes that the findings of compliance from amendment 6 remain valid. No new conditions are required.

12. 345-022-0110 Public Services

To amend the Site Certificate, the Council must find that:

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

Discussion

NWN considered a study area for the gas storage facility expansion is 30 miles from the site boundary. Potential providers of governmental services in the study area include Columbia and Clatsop Counties, cities and towns including Vernonia and Clatskanie, and the Mist-Birkenfield rural fire district. Amendment 9 would authorize new equipment at Miller Station and new gathering lines on land within the site.

Sewers and Sewage Treatment: No community in the area provides sewers or sewage treatment to the existing gas storage facility or to the surrounding area. Miller Station will continue to rely on its on-site sewage treatment systems. The gathering lines do not require any such facilities. For these reasons amendment 9 is not likely to result in an adverse impact on local communities’ sewers or sewage treatment facilities.

Water: No community in the area provides water to the existing gas storage facility or to the surrounding area. Miller Station will continue to meet its water needs from existing wells. Water for hydrostatic testing of the gathering lines will be obtained from these wells. Therefore the amendment is not likely to affect local communities’ ability to provide water.

Stormwater Drainage: No community in the area provides stormwater management to the existing gas storage facility or to the surrounding area. The proposed changes to Miller Station would occur within the existing fenced site and would not increase stormwater runoff.

Solid Waste Management: No community in the area provides solid waste management services to the existing gas storage facility or to the surrounding area. NWN will contract with local service companies to remove and dispose the solid waste from installation of the equipment. The amendment is not likely to result in an adverse impact on local communities' ability to provide for solid waste management.

Housing: NWN estimates a workforce of about 50 during the peak of construction. NWN anticipates that fewer than 50 percent of these would require temporary housing. There are communities within a 30-mile commute distance, such as Vernonia, Clatskanie and St. Helens in Oregon, and Longview and Kelso in Washington, that together have several hundred motel rooms. Therefore there is more than adequate temporary housing for the expected construction.

Traffic Safety: The only impact to traffic will be during construction. Access to the construction project will be along highway 47 and highway 202. The small amount of construction traffic along these highways will have minimal impact. The most significant traffic impact will be on the private road in forest land owned and managed for timber by Longview Fibre. Longview Fibre has indicated no concern and in fact has generally had a good working relationship with NWN.

Police and Fire Protection: Columbia County Sheriff's Department and the City of Vernonia provide police protection for the gas storage facility area. The sheriff's office commented on Amendment 8 in 2001, stating that a workforce of 50 did not present any problems. The City of Vernonia Chief of Police has commented on amendment 9 and indicated no concern.

The Mist-Birkenfeld Rural Fire Protection District provides fire protection services in the gas storage area. The expansion would pose little additional fire hazard in the area. NWN has operated its existing underground gas storage facility since 1987 without incident. Safety features required by federal regulation and described in detail in the orders for amendments 4, 6 and 8 will apply to this amendment as well. The Mist-Birkenfeld fire district has commented in support of the project. For these reasons, the expansion is not likely to result in a significant adverse impact on the ability of local providers to provide police or fire protection.

Health Care: As noted above, the construction for this amendment would require approximately 50 short-term workers, and the operation of the expanded facility will require no increase in the current on-site personnel. This is comparable to the number of construction workers needed for amendments 6 and 8, and less than the workforce for the South Mist Pipeline Extension. In the order approving amendment 6, the Council noted that the construction activities required are similar to those that already occur in the Mist area as a result of recent and on-going exploration for, and production of, natural gas. The construction proposed under amendment 9 would place few additional demands on health care facilities that serve the area.

Schools: As noted above, NWN estimates approximately 50 workers during the peak construction period, of which 50% would be local. This workforce would be short-term. NWN noted that a small community such as Mist could not accommodate as many as 15 additional students. However, NWN anticipates (above) that out-of-town workers will seek temporary

housing in communities such as Vernonia, St. Helens and Rainier, which offer more temporary housing and are better able to accommodate the additional students. Therefore, this amendment should not have a significant adverse effect on the communities' ability to provide schooling.

Conclusion

The Council finds that the new equipment proposed in amendment 9 is not likely to result in a significant adverse impact to the ability of communities within 30 miles of the site to provide any of the government services listed in the rule. No new conditions are required.

13. 345-022-0120 Waste Minimization

This standard provides that:

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

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

Discussion

In amendments 4 and 6, NWN described a plan to minimize the generation of solid waste, waste water and the use of water, and to reuse or recycle solid waste and waste water. The applications for those amendments list the solid wastes expected from construction and describe NWN's existing recycling program. The wastes expected are the same as for Amendments 4 and 6 and the same plans would apply.

During operations, NWN will operate essentially the same types of equipment being operated currently. Any change in waste production from the existing facility as a result of this proposed amendment would therefore be incremental. NWN will continue to follow the recycling and waste minimization measures currently used at Miller Station, as required by a condition from Amendment #4.

The compression and natural gas treatment operations at Miller Station do not require continuous use of water. For the gathering lines the only use of water is for hydrostatic testing.

NWN uses a recycling and reuse program to minimize waste at its existing facility. The modifications proposed by amendment 9 will not significantly increase the production or solid waste or waste water on a continuous basis. NWN has committed to a recycling and disposal program for construction wastes. The program was added as a condition in Amendment #4. The program includes:

(a) Construction waste materials will be transported to an appropriate recycling facility, or to a nearby sanitary landfill for nonrecyclable goods. Scrap steel and welding rod will be collected and transported to a recycling facility. Silt fence material and straw bales will be transported to a local landfill.

(b) Nonhazardous wastes associated with the Project such as crankcase oil, triethylene glycol and oil/water separator oils will be collected, transported and recycled by a vendor as bunker fuel.

Oily rags and oil filters will be incinerated off site by a permitted disposal facility. Granular activated carbon will be collected and sent to a permitted facility for regeneration.

(c) Waters used for pressure testing will be disposed of in a manner consistent with requirements specified in approved permits.

Conclusion

The waste minimization and recycling plans described in amendments 4 and 6 and 8 are already incorporated into conditions on the site certificate. As currently conditioned, the Council finds that amendment 9 meets its waste minimization standard. No new conditions are required.

B. Standards in OAR 345 Division 24

1. OAR 345-024-0030 Public Health and Safety

This standard has four parts, as follows:

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

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

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

(c) Compressors rated less than 1,000 horsepower -- 350 feet;

(d) Roads and road maintenance equipment housing -- 50 feet;

(2) The applicant can construct and maintain the facility in accordance with the applicable requirements of the U.S. Department of Transportation as set forth in 49 CFR, Part 192, and OAR 860-024-0020 in effect as of the date of this rule;

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

(4) The applicant can design, construct and operate the facility so as not to produce or contribute to seismic hazards that could endanger the public health and safety or result in damage to property.

All new equipment proposed is within the existing site. The Council has already found the site to meet the distance requirements of part (1). Therefore part (1) is met.

Part (2) is met because NWN will comply with Federal regulations in 49 CFR 192. The Oregon PUC administers and inspects for compliance with these rules under a delegation from the Federal government. PUC inspection reports provided in support of amendments 4 and 6 and the application for the South Mist Pipeline Extension indicate that both facilities comply.

Part (3) is met because the modifications proposed under amendment 9 will include the same safety features and be subject to the same monitoring program as the rest of the Mist underground storage facility. The US DOT regulations cited in section (2) of this rule require measures to prevent leakage, including factory- installed pipeline coating, individual joint wrap, cathodic protection and insulation from other pipes that could cause inadvertent electrical contact. The wellhead and pipeline facilities' safety features include relief valves and automatic shutdown systems. An Emergency Shutdown system is in place that can be either manually or

automatically activated. It stops all active plant process, closes all plant inlet and outlet valves, shuts off the engine fuel and start gas systems and, upon closure of necessary valves, vents to atmosphere all process and fuel gas within the plant. As methane is lighter than air, the safe location is to vent vertically. These systems are maintained on a regular basis and tested at least annually to assure proper response. Systems are in place to monitor compressor pressure and control building atmosphere for the presence of flammable vapors as well as systems that detect the presence of a fire. These instruments will trigger an alarm or plant shutdown when certain preset levels are reached. The plant has a staff of seven operators and maintenance personnel working rotating shifts. A communication link is maintained between the plant and the NWN Operations control room in Portland.

Under Amendment #4, NWN expanded its Emergency Plan from the original storage development to include the proposed additional reservoir and equipment associated with the Phase 2 (Calvin Creek) amendment. The Council added this as a condition to the Site Certificate under amendment 4 in 1997, and it will continue to apply.

Part (4) is met because the new equipment proposed under amendment 9 will be located within the existing site, and because EFSC has found, pursuant to its Structural Standard, that the facility can be designed, constructed and operated to avoid seismic hazards listed in ORS 455.447(1)(d).

Conclusion

The Council finds that amendment 9 meets the safety standards in OAR Chapter 345 Division 24. Because conditions adopted pursuant to this standard under amendments 4 and 6 continue to apply, no new conditions are required.

2. Carbon Dioxide Offset Standard for Nongenerating Energy Facilities, OAR 345-024-0620

Quotations of the rules have been shortened for brevity.

To issue a site certificate for a nongenerating energy facility that emits carbon dioxide, the Council must find that the net carbon dioxide emissions rate of the proposed facility does not exceed 0.504 pounds of carbon dioxide per horsepower hour. The Council shall determine whether the carbon dioxide emissions standard is met as follows:

(1) The Council shall determine the gross carbon dioxide emissions that are reasonably likely to result from the operation of the proposed energy facility. The Council shall base such determination on the proposed design of the energy facility. In determining gross carbon dioxide emissions for a nongenerating facility, the Council shall calculate carbon dioxide emissions for a 30-year period unless the applicant requests, and the Council adopts in the site certificate, a different period. The Council shall determine gross carbon dioxide emissions based on its findings of the reasonably likely operation of the energy facility. The Council shall use a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel (higher heating value) and a rate of 161 pounds of carbon dioxide per million Btu of distillate fuel (higher heating value), if the applicant proposes to use such fuel. If the applicant proposes to use any other fossil fuel, the Council shall adopt by rule an appropriate carbon dioxide content rate for the fuel;

(2) For any remaining emissions reduction necessary to meet the applicable standard, the applicant may elect to use any of the means described in OAR 345-024-0630 or any combination

thereof. The Council shall determine the amount of carbon dioxide emissions reduction that is reasonably likely to result from the applicant's offsets and whether the resulting net carbon dioxide emissions meet the applicable carbon dioxide emissions standard****

***(4) Before beginning construction, the certificate holder shall notify the Office in writing of its final selection of an equipment manufacturer and shall submit a written design information report to the Office sufficient to verify the facility's designed rate of fuel use and its nominal capacity for each fuel type. In the site certificate, the Council may specify other information to be included in the report. The Office shall use the information the certificate holder provides in the report as the basis for calculating, according to the site certificate, the amount of carbon dioxide emissions reductions the certificate holder must provide under OAR 345-024-0630;

(5) In the site certificate, the Council shall specify the schedule by which the certificate holder shall provide carbon dioxide emission offsets. In the schedule, the Council shall specify the amount and timing of offsets the certificate holder must provide to a carbon dioxide emissions offset credit account. In determining the amount and timing of offsets, the Council may consider the estimate of total offsets that may be required for the facility and the minimum amount of offsets needed for effective offset projects. The Office shall maintain the record of the offset credit account.

Discussion

In this discussion, the turbine driven compressor approved in amendment 8 and referred to in amendment 8 as the "new compressor" is now referred to as the KC-7 compressor. The Council found that the operation of this compressor met its standards for CO2 emissions, based on NWN's projection of likely operations at the time. In amendment 9, NWN is not proposing a new compressor but will simply increase the KC-7 compressor's hours of operation. The information on manufacturer, fuel use and capacity required by section (4) is therefore the same information that NWN supplied in compliance with condition 1 of Amendment 8 in 2001. NWN supplied this information in the affidavit of Charlie Stinson dated October 22, 2001. By supplying this affidavit, NWN satisfied its requirements under section (4) of the rule.

Hours of Operation The basic requirement under section (1) is for the Council to determine the emissions that are reasonably likely. The compressor, its fuel use, and its capacity under average annual site conditions are unchanged from amendment 8. The only change proposed is to the hours of operation.

NWN met the carbon dioxide standard for amendment 8 based on projected full power operations of 504 hours per year. However, the order approving amendment 8 states:

****NWN has stated that it reasonably expects to operate the new compressor for 6 percent of the time and under certain conditions. However, over 30 years the actual operation may vary from the forecast operation ***."

Therefore, the Council anticipated that NWN might increase its hours of operation for the KC-7 compressor. In Amendment 9, NWN projects that they will use the KC-7 turbine for a total of about 105 days (2520 hours) per year. Most operations will be at reduced horsepower. Exhibit

14 of the application is a table showing expected hours of operation at each power level, in increments of 10% power. In projecting the likely emissions, NWN used the following assumptions:

- NWN used a full power fuel use rate of 57.8 MMBtu/hour and a nominal horsepower of 7199 hp at full power. These values are lower than the horsepower and fuel use rate given in the October 22, 2001 affidavit. The affidavit listed a rated horsepower of 7304 and a heat rate of 8753 BTU/hp-hr, which yields a fuel consumption rate of 63.9 MMBtu/hp-hr. The affidavit was based on information from the vendor, while the calculations in the application for amendment 9 are based on actual operations.
- For operations between 90% and full power, NWN used the full power fuel use rate of 57.8. For operation between 80 and 89% power, NWN calculated fuel use based on 90% of the full power rate. NWN rounded up in similar fashion for operations in the 70 to 79% range, the 60 to 69% range, and so forth. NWN used 50% of the full power rate for all operations at less than 50% power.

Multiplying the hours of operation at each power level by the corresponding power level, the resulting calculation shows that NWN projected operations equivalent to 1963 “effective full power hours” per year. In the application, NWN also added a 25% “safety factor” to its calculation of expected fuel use and CO₂ emissions.

Using these assumptions, NWN projected annual fuel use of 141,841 MMBtu/year and projected CO₂ emissions of 248,931 tons over 30 years (including the 25% safety factor). This projection includes the operations already accounted for in amendment 8.

Excess Carbon Dioxide Emissions Using the actual horsepower and fuel use rate reported by NWN in its application for amendment 9, NWN’s CO₂ calculations contain an implicit heat rate of 8029 BTU/hp-hr. Assuming 117 lb./MMBtu as required by rule, the resulting total CO₂ emissions rate is 0.939 lb./hp-hr. This is 0.417 lb./hp-hr in excess of the 0.522 standard in effect when amendment 8 was approved.

Using the above assumptions about horsepower, fuel use and effective full power hours of operation, NWN projects a total of 115,373 tons of excess CO₂ emissions that would require offsets over 30 years. Using the same assumed heat rate, horsepower and effective full power hours of operation, staff performed independent calculations of excess CO₂ emissions and recommends a Council finding that NWN’s calculations are reasonably conservative.

Required Offsets Because the compressor was permitted in amendment 8 and is already operating, an offset fund is already established for the KC-7 compressor, with 27,725 tons initially offset. The offset account is based on an allowed CO₂ emissions rate of 0.522 lb./hp-hr., the rate in effect at the date of amendment 8.

NWN proposes to provide the required offsets for amendment 9 by supplementing the payment it made to the Climate Trust under amendment 8. The Department recommends that adding to

the offset account established for amendment 8 is an acceptable means of providing offsets for amendment 9. The amount and schedule for additional payments is discussed below.

Means of Compliance for Nongenerating Energy Facilities, OAR 345-024-0630

The applicant may elect to use any of the following means, or any combination thereof, to comply with the carbon dioxide emissions standard for nongenerating energy facilities:***

(2) Providing offset funds, directly or through a third party, in an amount deemed sufficient to produce the reduction in carbon dioxide emissions necessary to meet the applicable carbon dioxide emissions standard according to the schedule set forth pursuant to OAR 345-024-0620(5). The applicant or third party shall use the funds as specified in OAR 345-024-0710. The Council shall deem the payment of the monetary offset rate [\$0.85], pursuant to OAR 345-024-0580, to result in a reduction of one ton of carbon dioxide emissions. The Council shall determine the offset funds using the monetary offset rate and the level of emissions reduction required to meet the applicable standard. If the Council issues a site certificate based on this section, the Council may not adjust the amount of the offset funds based on the actual performance of offsets;***

(4) Each year after beginning commercial operation, the certificate holder shall report to the Office data showing the amount and type of fossil fuels used by the facility and its horsepower-hours of operation. The Council shall specify in the site certificate how the Office shall use those data to calculate the gross carbon dioxide emissions from the facility during the report year and the net emissions in excess of the carbon dioxide emissions standard. The Office shall then subtract excess emissions from the carbon dioxide emissions offset credit account. The Council shall specify in the site certificate the minimum amount of carbon dioxide offset credits that a certificate holder shall provide to establish the offset credit account. The Council may specify an amount of offset credits equal to the total offsets required for the facility. The Council shall specify the minimum amount of carbon dioxide offset credits that a certificate holder must maintain in the account and the minimum amount of carbon dioxide offset credits the certificate holder shall provide to replenish the account. The Office shall notify the certificate holder when it must replenish its offset credit account according to the conditions in the site certificate. The certificate holder shall maintain a positive balance in the offset credit account for 30 years, unless the Council specifies a different period in the site certificate;

(5) If the certificate holder is replenishing its offset credit account by meeting the monetary path payment requirement described in OAR 345-024-710, the certificate holder may replenish its offset credit account without amending the site certificate by using the calculation methodology detailed in conditions that the Council adopts in the site certificate;***

Discussion

As noted above, NWN proposes to provide the required offsets by supplementing the fund established under amendment 8. The Council concurs, because it anticipated increased operations when it approved amendment 8 and set forth terms and conditions for replenishing the offset account. The conditions of the site certificate require a yearly reporting of actual emissions and tracking of an offset credit account. The conditions further provide that a certificate holder must maintain a positive balance in the offset credit account. In the site certificate, the Council

must specify the minimum balance and the minimum amount by which the certificate holder must replenish the offset credit account.

Conditions adopted under amendment 8 set the minimum balance in the offset credit account at 2,000 tons, which is about 10 percent of the total initial estimated offset credit account. The conditions specify that NWN shall replenish the offset credit account based on the average of its excess emissions during the prior three years times the number of years remaining in the deemed 30-year life of the facility. The conditions also specify the schedule and terms for payments needed to replenish the account.

As projected by NWN and as independently projected by staff, the total offsets required with the additional hours of operation in amendment 9 will be slightly more than 3 times the initial offsets accounted for in amendment 8. Therefore, the Council will increase the minimum balance to 6,000 tons.

The conditions adopted in amendment 8 are based on the 0.522 lb./hp-hr allowed emissions rate in effect in 2001. Those conditions also set forth terms and conditions of payment including interest rate, adjustments for inflation, and annual reporting to the Department. All of those conditions would remain in effect, with the only modification being the change in minimum balance from 2,000 tons to 6,000 tons.

Conclusion

The Council finds that the increased operations of the KC-7 compressor proposed in amendment 9 meet the carbon dioxide standard for nongenerating energy facilities with the conditions set forth in this order.

C. Requirements of Other Agencies

Amendment 9 requires no permits under EFSC jurisdiction, other than the site certificate amendment. The gathering line route does not cross any jurisdictional wetlands. Water for hydrostatic testing will be obtained from NWN's existing wells, and discharged at Miller Station. NWN does not plan to install any new compressors, so there is no change to previous findings of compliance with DEQ's noise standards.

Increased operation of the compressor may affect NWN's Air Contaminant Discharge Permit. However, the Department of Environmental Quality administers that permit under a delegation from the federal government.

V. Issues Raised in Public Comment

ODOE issued public notice of NWN's application and requested public comment by October 16, 2003. ODOE received no public comments concerning this amendment.

NWN commented on the Proposed Order on November 19, 2003⁷. They informed ODOE of a minor design change. In its original application, NWN proposed to put auxiliary equipment such

⁷ letter from Todd Thomas, NWN to Adam Bless, ODOE November 19, 2003

as valves, separators and metering equipment at the well sites. In its November 19 comment, NWN stated that it would be more efficient to put a centrally-located set of auxiliary equipment at the Busch valve station, instead of installing equipment at each well site. This equipment would require an additional 2400 square feet of permanent easement (a strip of land 20'x 120') at the Busch valve station, immediately adjacent to the right-of-way for the gathering line from the Schlicker pool. However, this additional easement is offset by reduced impact at the well sites. As explained in NWN's comment, the equipment would still be within the study areas for all of the applicable Council standards. The habitat at the Busch valve station is equivalent in value to the habitat at the well sites, and the same mitigation conditions would apply at either location. Therefore, NWN concluded that locating the auxiliary equipment at the valve station instead of the well sites did not substantively change any findings of compliance with Council standards. The Council concurs.

VI. Order and Conditions for the Site Certificate Amendment

The Council finds that the proposed amendment 9 complies with all Council standards and applicable requirements of other agencies, and will amend the site certificate to permit construction and operation of the modifications in amendment 9 as described in this order, which shall be incorporated into the site certificate. This finding is based on the following new or amended conditions. The plain text is existing language, with changes shown in underline and strikeout form:

A. Mandatory Conditions under OAR 345 Division 27

The following conditions are mandated by OAR 345-027-0020. Some conditions that are listed in OAR 345-027-0020 do not appear below, either because they do not apply or because they are already in the site certificate under a previous amendment.

- (1) Construction of the modifications authorized under amendment 9 shall begin not later than December 1, 2004 and shall be completed not later than December 31, 2005.
- (2) 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.

Site Specific Condition Under 345-027-0023

One condition is modified, as follows:

- (1) Pursuant to amendment ~~8~~9, the permitted daily throughput of the facility is ~~317~~ 515 million cubic feet per day.

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

Structural and Soils Standards

- (1) NWN shall design the modifications authorized by amendment 8 in accordance with the seismic design factors shown in Table 2 of GeoEngineers' September 18, 2001 report "EFSC Structural Standard Information, Miller Station Gas Compression Facility, Mist,

Oregon.” These design parameters also apply to the Miller Station improvements authorized in amendment 9

- (2) NWN shall design, engineer and construct the modifications authorized by amendment 8 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.” These recommendations also apply to the Miller station improvements authorized in amendment 9.
- (3) During construction authorized by amendment 9, NWN shall implement the recommendations in Exhibit 6, section 7 of the application for amendment 9.

Fish and Wildlife Habitat Standard

- (1) During the construction under amendment 9, NWN will minimize removal of vegetation to the extent practical.
- (2) Where an amendment 9 gathering line 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 approaches the Busch valve station, the permanent easement may be 30 feet wider than the existing one to allow installation of surface equipment.
- (3) NWN will use the erosion control measures required for the NPDES 1200-C (a federal permit) and Best Management Practices (BMP’s) to prevent erosion of soil into the ephemeral stream channel during construction of the amendment 9 gathering lines.
- (4) Following construction of the gathering lines for amendment 9, NWN will allow and encourage native vegetation to grow back in the temporary construction easement and staging areas.
- (5) Where revegetation is necessary in the permanent right-of-way for the gathering lines constructed under amendment 9, NWN will plant vegetation that provides forage for big game species.
- (6) During gathering line 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.
- (7) Crews will use hand tools to control [right-of-way] vegetation at stream crossings in the permanent easement.
- (8) Construction of the Busch well gathering line will follow the US Fish and Wildlife Service scheduling and distance guidelines to avoid adverse impact to the bald eagle nest.

C. Conditions Related to CO2 Standards at OAR 345 Division 24

(5)(b) If the offset credit account contains fewer than 2,000 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 ***.

D. NWN Request to eliminate the Vibration Monitoring Program

Amend condition [4]d. imposed under amendment 1 to eliminate the local vibration monitoring program, as proposed by NWN and as shown in section II.C of this order.

Issued on December 5, 2003

By: Roslyn Elms Sutherland Dec 5th 03
Roslyn Elms-Sutherland date
Chair, Energy Facility Siting Council