

AMENDMENT NUMBER NINE
TO THE ENERGY FACILITY SITE CERTIFICATE
FOR THE NORTHWEST NATURAL
MIST UNDERGROUND NATURAL GAS STORAGE FACILITY

This amendment number nine to the Energy Facility Site Certificate for the Northwest Natural Mist Underground Gas Storage Facility is issued and executed pursuant to the Order in the Matter of the Application for Amendment by Northwest Natural for amendment number nine to its site certificate for the Mist Underground Natural Gas Storage Facility between the State of Oregon (State) acting by and through its Energy Facility Siting Council (EFSC or "the Council") and Northwest Natural Co. (NWN), an Oregon corporation.

This amendment authorizes NWN to increase the allowed throughput at the Mist storage facility from 317 million cubic feet per day (mmcf) to 515 mmcf. 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, the "Busch" and "Schlicker" pools, in the Calvin Creek storage area. The amendment also allows NWN to terminate the vibration monitoring program created in site certificate amendment 1. All equipment modifications are located on the existing site.

The findings of fact, reasoning and conclusions of law underlying the terms and conditions of this amendment are set forth in the Council's Final Order Approving Amendment Number Nine which was issued on December 5, 2003 and which by this reference is incorporated herein.

I. DESCRIPTION OF THE AMENDMENT

Amendment 9 authorizes NWN to develop surface facilities associated with two new storage pools, the "Busch" pool and the "Schlicker" pool, on land already within the Calvin Creek site. 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 and will go from the Busch and Schlicker well sites to the Busch Valve Station, where they join the two 16-inch lines that NWN installed under the Nehalem river in 1997 pursuant to amendment 4. The new gathering lines will follow the corridor shown in Exhibit 3 of the application for amendment 9, which NWN submitted on September 12, 2003.

NWN also will increase the permitted daily throughput from 317 mmcf to 515 mmcf. The increase does not require any new compressors, but does require new dehydration equipment, gas quality and monitoring equipment, and interconnect piping. All of this equipment will be at Miller station. This equipment would allow NWN to reach 425 mmcf 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). This amendment increases the permitted throughput to 515 mmcf/d.

NWN may also 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 will end this program because after 16 years of data collection, there has been no correlation between storage activities and earthquake-like events.

II. CONDITIONS FOR AMENDMENT 9

Except as modified in this amendment, existing conditions in the site certificate and amendments one through eight continue to apply. The following new and modified conditions shall apply under amendment 9:

A. Mandatory Conditions under OAR 345 Division 27

Conditions required under OAR 345-027-0020 and 0023 and imposed under amendments 4 through 8 shall apply to the modifications authorized under amendment 9 as well. The following conditions are added or modified. New conditions are shown in underline. Existing conditions that are now modified are shown in underline and strikeout:

- (1) The construction 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

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

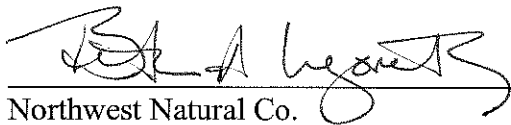
(5)(b) If the offset credit account contains fewer than ~~2,000~~ 6,000 tons of carbon dioxide offset credits, NWN shall replenish the offset credit account. NWN shall replenish the offset credit account equivalent to the full amount of the estimated future excess emissions ***.

D. NWN Request to eliminate the Vibration Monitoring Program

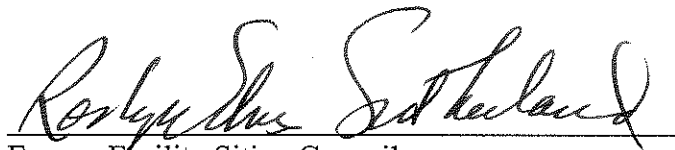
Condition [4]d. imposed under amendment 1 is amended as follows:

“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.”~~

IN WITNESS THEREOF, this Site Certificate Amendment Number 9 has been executed by the State of Oregon, acting by and through its Energy Facility Siting Council and Northwest Natural Co.


Northwest Natural Co.

12-8-03
date


Energy Facility Siting Council
Dr. Roslyn Elms-Sutherland, Chair

dec 5 '03
date