

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING A) Proposed Decision Regarding
NEW CONTAMINANT SOURCE FOR) ORDER No. 04AQ-C009
NORTHWEST PIPELINE ~~CORPORATION~~GP) First Revision

To: Northwest Pipeline ~~Corporation~~GP
PO Box 58900
Salt Lake City, Utah 84158-0900

1.0 PROJECT SUMMARY

On May 5, 1999, Ecology approved Notice of Construction (NOC) Order No. DE 99AQ-C136, for the replacement of two natural gas turbines with a new Solar Centaur T-4700S SoLoNOx natural gas turbine and a new Solar Taurus T-7000S SoLoNOx natural gas turbine. On January 18, 2002, Ecology approved NOC Order No. DE 99AQ-C136 First Revision, authorizing replacement of an existing generator with a new larger unit, a Caterpillar 3408 generator rated at 310 kW and 460 HP.

On July 17, 2002, Ecology approved NOC Order No. 02AQCR-4500, authorizing installation and operation of a third natural gas turbine, a new Solar Taurus 60 T-7800S.

NOC Orders Nos. DE 99AQ-C136 First Revision, and 02AQCR-4500, each required source testing for PM₁₀, at least once every five years. Each of the three turbines, authorized by these Orders, were PM₁₀ source tested upon initial installation. Source test results showed PM₁₀ emissions are approximately one-half of the emissions allowed by the included emissions limits. Upon consideration of the high cost associated with PM₁₀ testing, of these emissions units, and the combined potential PM₁₀ emissions of 7.4 tons per year, Ecology removed the PM₁₀ source testing requirement. Order No. 04AQ-C009 consolidated NOC Orders Nos. DE 99AQ-C136 First Revision, and 02AQCR-4500.

This Order considers air emissions from 1 - Solar Centaur T-4700S, 1 - Solar Taurus T-7000S turbine, 1 - Solar Taurus T-7800S turbine, 1 - 250,000 Btu/hr Sivalls line heater, 1 - 2.51 million Btu/hr Sellers boiler, and 1 - 460 horsepower Caterpillar 3408 emergency generator. Emission estimates in 2.2 include emissions from all six emission units and quantify sulfur dioxide emissions based upon the pipeline tariff of 5 grains sulfur / 100 standard cubic feet of natural gas.

The source is located at the Goldendale Compressor Station, near Goldendale, Washington within Section 3, Township 3 North, Range 16 East, Willamette Meridian, Klickitat County.

In relation to the above, the Washington State Department of Ecology (Ecology), pursuant to Revised Code of Washington (RCW) 70.94.152, makes the following determinations:

- 1.1 The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in chapter 173-400 Washington Administrative Code (WAC) and chapter 173-460 WAC, and the operation thereof, at the location proposed, will not result in ambient air quality standards being exceeded.
- 1.2 The proposed project, if constructed and operated as herein required, will provide all known, available and reasonable methods of emission control.

THEREFORE, IT IS ORDERED that the project as described in said Notice of Construction and more specifically detailed in plans, specifications and other information submitted to Ecology in reference thereto, is approved for construction, installation and operation, provided the following conditions are met:

2.0 DESCRIPTION

2.1 LAWS AND REGULATIONS

This facility qualified as a new source of air contaminants under WAC 173-400-110, October 23, 1998, August 15, 2001, and WAC 173-460-040, February 2, 1998, July 21, 1998.

The proposed project shall comply with all current state laws and regulations, including chapter 70.94 RCW, Washington Clean Air Act; chapter 173-400 WAC, General Regulations for Air Pollution Sources; and chapter 173-460 WAC, Controls for New Sources of Toxic Air Pollutants.

The proposed project shall also comply with Title 40 Code of Federal Regulations (CFR) 60, Subpart GG, Standards of Performance for Stationary Gas Turbines.

This Order supercedes NOC Order No 04AQ-C009, issued June 23, 2004.

2.2 ESTIMATED EMISSIONS

This facility ~~will~~may produce up to the following controlled annual emissions:

Pollutant	Emissions	
Nitrogen Oxides (NO _x)	72.674.1	tons per year
Carbon Monoxide (CO)	82.590.9	tons per year
Sulfur Dioxide (SO ₂)	0.9311.0	tons per year
Volatile Organic Compounds (VOC)	13.52.57	tons per year
Total Suspended Particulate (TSP), PM₁₀, PM_{2.5}	7.55.18	tons per year
Total Suspended Particulate (TSP)	7.5	tons per year

2.3 AMBIENT ANALYSIS

The site of this proposal is within an area which is in attainment or unclassified for all pollutants regulated by the ambient air quality standards.

Modeling, for the Facility, has shown compliance with Criteria pollutant and toxic air pollutant emissions, using EPA approved models.

3.0 APPROVAL CONDITIONS

3.1 BACT

As required by WAC 173-400-113(2)(b), October 23, 1998, and August 15, 2001, this project shall use Best Available Control Technology (BACT) to control emissions of criteria pollutants. The following is considered BACT:

- 3.1.1 Nitrogen Oxides (NO_x) - Use of dry low NO_x combustion control. NO_x emissions not to exceed 25 parts per million dry volume (ppmdv) at 15 % O₂.
- 3.1.2 Carbon Monoxide (CO) - Good combustion control.
- 3.1.3 Volatile Organic Compounds (VOC) - Good combustion control.
- 3.1.4 Sulfur Dioxide (SO₂) - Good combustion control, use of a clean burning fuel (i.e., natural gas), and limitations on sulfur content of the fuel contained in 40 CFR 60 Subpart GG.
- 3.1.5 Particulate Matter (TSP & PM₁₀) - Good combustion control and use of a clean burning fuel (i.e., natural gas).

3.2 T-BACT

As required by WAC 173-460-040(4)(b), February 2, 1998, and July 21, 1998, this project shall use Best Available Control Technology for Toxics (T-BACT). The following is considered T-BACT:

- 3.2.1 Toxic Air Pollutants - Use of a clean-burning fuel (i.e., natural gas) and use of good combustion practices.

3.3 PRODUCTION

~~3.3.1—No fuel other than natural gas shall be combusted. Consumption of natural gas shall be limited as specified below:~~

Turbine	Consumption (MMBtu/hr)*
Solar Centaur T-4700S	46.8
Solar Taurus T-7000S	54.0
Solar Taurus T-7800S	57.06 ± 20%

~~*MMBtu/hr = million British thermal units per hour~~

~~3.3.23.3.1~~ Each turbine shall operate only in SoLoNO_x mode, except during periods

of start-up and shut-down or when source tests are being conducted on the unit. The SoLoNOx modes determined during the initial setup and testing of each turbine, are specified below:

Turbine	SoLoNOx mode (NGP)*
Solar Centaur T-4700S	90.5 %
Solar Taurus T-7000S	90.0 %
Solar Taurus T-7800S	90.0 %

*NPG = Gas Producer Speed

Alternate SoLoNOx modes may be proposed in writing to Ecology and may be used if approved by Ecology in writing.

~~3.3.33.3.2~~ 3.2 The backup generator shall operate only when purchase power is not available and during periodic maintenance checks, and shall be limited to 500 hours per year of operation. The power generated by the unit shall only be used on-site.

3.4 EMISSION LIMITS

3.4.1 The following emission rates shall not be exceeded at the Solar Centaur T-4700S stack:

Pollutant	Emission Limits
Nitrogen Oxides (NO _x)	4. 260 <u>37</u> pounds per hour 25 ppmdv at 15 % O ₂
Carbon Monoxide (CO)	5. 190 <u>33</u> pounds per hour
Sulfur Dioxide (SO ₂)	0. 008 <u>66</u> pounds per hour
Volatile Organic Compounds (VOC)	0. 021 <u>15</u> pounds per hour
PM ₁₀	0. 575 <u>31</u> pounds per hour
Total Suspended Particulate (TSP)	0. 575 <u>31</u> pounds per hour
Toxic Air Pollutants*	
Acetaldehyde	0.00321 pounds per hour
Acrolein	0.0108 pounds per hour
Benzene	0.00176 pounds per hour
Formaldehyde	0. 015 <u>14</u> pounds per hour

* Toxic air pollutants with estimated emissions greater than the Small Quantity Emission Rate listed in WAC 173-460-080(2)(e).

3.4.2 The following emission rates shall not be exceeded at the Solar Taurus T-7000S stack:

Pollutant	Emission Limits
Nitrogen Oxides (NO _x)	5. 400 <u>56</u> pounds per hour

Pollutant	Emission Limits	
	25	ppmdv at 15 % O ₂
Carbon Monoxide (CO)	6.58078	pounds per hour
Sulfur Dioxide (SO ₂)	0.00885	pounds per hour
Volatile Organic Compounds (VOC)	0.02619	pounds per hour
PM ₁₀	0.73140	pounds per hour
Total Suspended Particulate (TSP)	0.73140	pounds per hour
Toxic Air Pollutants		
Acetaldehyde*	0.00465	pounds per hour
Acrolein*	0.0156	pounds per hour
Benzene*	0.00255	pounds per hour
Formaldehyde*	0.021917	pounds per hour

* Toxic air pollutant with estimated emissions greater than the Small Quantity Emission Rate listed in WAC 173-460-080(2)(e).

3.4.3 The following emission rates shall not be exceeded at the Solar Taurus T-7800S stack:

Pollutant	Emission Limits	
Nitrogen Oxides (NO _x)	5.686.21	pounds per hour
	25.00	ppmdv at 15 % O ₂
Carbon Monoxide (CO)	6.927.58	pounds per hour
	50.00	ppmdv at 15 % O ₂
Sulfur Dioxide (SO ₂)	0.190.94	pounds per hour
	1.980.22	pounds per hour
Volatile Organic Compounds (VOC)	25.00	ppmdv at 15 % O ₂
	0.3845	pounds per hour
PM ₁₀	0.3845	pounds per hour
Total Suspended Particulate (TSP)	0.3845	pounds per hour
Toxic Air Pollutants		
Formaldehyde*	0.040519	pounds per hour
Nitric oxide*	5.11	pounds per hour
PAH*	0.000126	pounds per hour

* Toxic air pollutants with estimated emissions greater than the Small Quantity Emission Rate listed in WAC 173-460-080(2)(e).

3.4.4 Visible emissions from the turbine exhaust stack shall not exceed five (5) percent opacity.

3.4.5 No visible emissions from the emission unit shall be detectable offsite.

3.4.6 The backup generator shall be operated within the Tier 1 engine emission standards of 40 CFR Parts 89.112-96 and 89.113-96.

3.5 TESTING

- 3.5.1 Source testing for NO_x and CO shall be conducted at least once per calendar year.
- 3.5.2 Source testing for ~~SO₂ and~~ VOC shall be conducted at least once every five calendar years.
- 3.5.3 Source testing for all required pollutants shall be performed at the same time.
- 3.5.4 Source testing shall be performed by an independent testing firm.
- 3.5.5 Testing shall consist of at least three separate runs across the SoLoNO_x mode. A run shall be conducted at each of the high, midpoint, and low, range of Gas Producer Speeds which comprise the SoLoNO_x mode.
- 3.5.6 Ecology shall be notified, and a test plan shall be submitted for approval by Ecology, at least 30 days prior to any source testing.
- 3.5.7 Written results of all source testing shall be submitted to Ecology within 60 days of occurrence.
- 3.5.8 Adequate sampling ports, safe sampling platforms and access to platforms, and utilities for sampling and testing shall be provided by the permittee according to 40 CFR 60.8.
- 3.5.9 Source testing shall be conducted according to the following specified methods:

Pollutant	Test Method
Oxides of nitrogen (NO _x)	40 CFR 60, Appendix A, Method 20, July 1, 2001
Carbon monoxide (CO)	40 CFR 60, Appendix A, Method 10, July 1, 2001
Sulfur dioxide (SO₂)	40 CFR 60, Appendix A, Method 20, July 1, 2001
Volatile organic compounds (VOC)	40 CFR 60, Appendix A, Method 25A, July 1, 2001
Particulate Matter (PM ₁₀) (All particulate matter shall be considered PM ₁₀ .)	40, CFR, Part 60, Appendix A, Method 5, July 1, 2001
Opacity	40 CFR 60, Appendix A, Method 9, July 1, 2001

- 3.5.10 Testing for the nitrogen content of the fuel supply to the compressor to meet the requirement of 40 CFR 60.334 has been waived as authorized by the Environmental Protection Agency, Region 10, January 11, 1993. The custom

monitoring schedule is allowed according to 40 CFR 60.334 and may be changed.

3.5.11 ~~Testing for the sulfur content of the fuel supply to the compressor to meet the requirement of less than or equal to 0.8 percent by weight, according to 40 CFR 60.333, the monitoring, according to 40 CFR 60.334 and the test methods and procedures, according to 40 CFR 60.335 shall follow the custom fuel monitoring schedule established for the thirteen compressor stations located in Washington, Idaho, and Oregon. This custom fuel gas monitoring has been authorized by the Environmental Protection Agency, Region 10, on January 11, 1993, and August 10, 1993. The custom monitoring schedule is contingent upon the use of pipeline quality natural gas, a record of constant supplier or source, no change in fuel quality, and source test results for each turbine. The custom monitoring schedule is allowed according to 40 CFR 60.334 and may be changed. Fuel supply sulfur content shall be monitored by holding a tariff for the gaseous fuel of 5.0 grains/100 scf or less.~~

3.5.12 Alternate methods of testing and alternate testing requirements may be proposed in writing to Ecology and may be used if approved by Ecology in writing.

3.5.13 An alternate custom fuel gas monitoring schedule may be used, to comply with Conditions 3.5.10 and 3.5.11, above, if approved, in writing, by EPA Region 10 and Ecology.

3.6 INTERLOCKS

The permittee shall install a continuous mode monitor with an alarm programmed to sound when the emission unit operates outside of the SoLoNO_x mode. If the alarm is activated, the gas control operator will either speed up or shut down the unit.

3.7 MONITORING

3.7.1 On line monitors shall be referenced in the Operations and Maintenance Manual.

3.7.2 Measurement of NO_x from the turbine using a Continuous Emissions Monitoring System (CEMS), or an approved alternative emissions methodology, may be required if the annual stack test does not demonstrate compliance with the above emission limit for NO_x. If a CEMS or equivalent system is required, it shall meet the requirements of 40 CFR 60, Appendix B, Performance Specifications, and 40 CFR 60, Appendix F, Quality Assurance Procedures. CEMS (or approved alternative emissions monitoring methodology) reports shall be submitted at least monthly for NO_x (unless a different testing and reporting schedule has been approved by the department) within 30 days of the end of each calendar month and in a format approved by the department which shall include but not be limited to the following:

3.7.2.1 Process or control equipment operating parameters.

3.7.2.2 The daily maximum and average concentration, in the units of the

standard, for each pollutant monitored.

- 3.7.2.3 The duration and nature of any monitor down-time.
- 3.7.2.4 Results of any monitor audits or accuracy checks.
- 3.7.2.5 Results of any stack tests.

For each occurrence of monitored (by CEMS or approved alternative methodology) emissions in excess of the standard the report shall include the following:

- 3.7.2.6 The time of the occurrence.
- 3.7.2.7 Magnitude of the emission or process parameters excess.
- 3.7.2.8 The duration of the excess.
- 3.7.2.9 The probable cause.
- 3.7.2.10 Any corrective actions taken or planned.
- 3.7.2.11 Any other agency contacted.

Any proposed alternative NO_x reporting shall be at a minimum equivalent to a CEMS which meets, or is equivalent in scope and effect, to 40 CFR Part 60 Appendix B, Performance Specifications, and Appendix F, Quality Assurance Procedures.

3.8 RECORD KEEPING AND REPORTING

~~3.8.1 Records shall be kept of the quantity of fuel used, limited by Condition 3.3.1, and all periods of operation outside of the SoLoNO_x mode not allowed for by Condition 3.3.2. Records shall be kept of all periods of operation outside of the SoLoNO_x mode not allowed for by Condition 3.3.1.~~

~~3.8.1—~~

3.8.2 Records shall be kept of all periods of downtime of the monitors of Conditions 3.6 and 3.7.1.

3.8.3 The records required by Conditions 3.8.1 and 3.8.2 shall be submitted to Ecology semiannually.

3.8.4 Notification and record keeping required by Title 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, including notification and record keeping for construction, startup, physical or operational changes, malfunction, excess emission, or any other reportable item, shall be submitted according to 40 CFR 60.7.

3.8.5 Source test plans and results shall be submitted to Ecology according to Conditions 3.5.6 and 3.5.7.

3.8.6 If a NO_x CEMS, or an approved alternative emissions methodology is installed. Record keeping and reporting shall be conducted according to Condition 3.7.2.

3.9 OPERATIONS AND MAINTENANCE

The emission unit shall be properly operated and maintained. An emission unit specific operating and maintenance (O&M) manual shall be developed and followed by the permittee. Manufacturer's instructions may be referenced. O&M manual development shall be completed within 30 days of installation of the emission unit. The O&M manual shall be updated to reflect any modifications to the emission units or operating procedures. The emission unit shall be operated and maintained in accordance with the O&M manual. Failure to follow the O&M manual and the adequacy of the O&M manual will be two of the factors considered by Ecology in determining whether the emission units are properly operated and maintained. Regular maintenance records shall be kept at the source. These O&M records shall be available for inspection by Ecology, organized in a readily accessible manner, and retained for at least five (5) years. The O&M manual shall at a minimum include:

- 3.9.1 Normal operating parameters for the emission units;
- 3.9.2 A maintenance schedule for the emission units;
- 3.9.3 Monitoring and record keeping requirements for the emission units;
- 3.9.4 A description of the monitoring procedures for the emission units; and
- 3.9.5 Actions for abnormal control system operation.

3.10 GENERAL CONDITIONS

- 3.10.1 No instrumentation containing mercury shall be used at the site.
- 3.10.2 No outdoor burning shall be conducted at the source.
- 3.10.3 Operation of the equipment must be conducted in compliance with all data and specifications submitted as part of the Notice of Construction application unless otherwise approved by Ecology. Any activity undertaken by the permittee or others, in a manner inconsistent with the application and this determination, shall be subject to Ecology enforcement under applicable regulations.
- 3.10.4 Records of all data shall be maintained in a readily retrievable manner for a period of five (5) years and be made available to authorized representatives of Ecology.
- 3.10.5 Legible copies of this Order and the O&M manuals shall be displayed onsite at all times in a location known by and available to employees in direct operation of the emission unit and available to Ecology upon request.
- 3.10.6 Access to the source by the United States Environmental Protection Agency or the Department of Ecology shall be permitted upon request for the purpose of compliance assurance inspections. Failure to allow access is grounds for revocation of this Order.

- 3.10.7 Nothing in this determination shall be construed so as to relieve the permittee of their obligations under any state, local, or federal laws or regulations.
- 3.10.8 It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.
- 3.10.9 It shall be grounds for rescission of this approval if physical operation of an emission unit is discontinued for a period of eighteen (18) months or more. Ecology may extend the 18-month period upon a satisfactory showing that an extension is justified.

~~3.10.10 This Order is valid only after payment of appropriate fee(s) required pursuant to WAC 173-400-116.~~

Authorization may be modified, suspended or revoked in whole or part for cause, including, but not limited to, the following:

- I. Violation of any terms or conditions of this authorization;
- II. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization of application of any provision to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this authorization, shall not be affected thereby.

You have a right to appeal this permit. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the “date of receipt” of this document. Filing means actual receipt by the Board during regular office hours
- Serve your appeal on the Department of Ecology within 30 days of the “date of receipt” of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). “Date of receipt” is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of (1) the permit you are appealing and (2) the application for the permit.
- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:

The Pollution Control Hearings Board
PO Box 40903
Olympia, WA 98504-0903

OR

Deliver your appeal in person to:

The Pollution Control Hearings Board
4224 – 6th Ave SE Rowe Six, Bldg 2
Lacey, WA 98503

2. To serve your appeal on the Department of Ecology

Mail appeal to:

The Department of Ecology
Appeals Coordinator
P.O. Box 47608
Olympia, WA 98504-7608

OR

Deliver your appeal in person to:

The Department of Ecology
Appeals Coordinator
300 Desmond Dr SE
Lacey, WA 98503

3. And send a copy of your appeal to:

Sue Billings
Department of Ecology
Central Regional Office
15 West Yakima Avenue, Suite 200
Yakima, WA 98902

*For additional information visit the Environmental Hearings Office Website:
<http://www.eho.wa.gov>*

*To find laws and agency rules visit the Washington State Legislature Website:
<http://www1.leg.wa.gov/CodeReviser>*

DATED at Yakima, Washington, this [day] day of [month], 2009.

REVIEWED BY:

PROPOSED DECISION

Lynnette A. Haller, PE
Central Regional Air Quality Section
Washington State Department of Ecology

APPROVED BY:

PROPOSED DECISION

Susan M. Billings

Section Manager
Central Regional Air Quality Section
Washington State Department of Ecology