

Statement of Basis for the Air Operating Permit AOP 002R4

Northwest Pipeline LLC Mount Vernon Compressor Station

Mount Vernon, Washington

October 10, 2024



Serving Island, Skagit & Whatcom Counties

PERMIT INFORMATION

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NAICS: 486210

NWCAA ID: 1440

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SECTION 1 INTRODUCTION

Northwest Pipeline LLC operates a natural gas compressor station, located at 15498 Lange Road, Mount Vernon, WA. Emissions from the compressor station are primarily from the burning of natural gas in fuel-burning emission units at the station.

The compressor station (also identified herein as the permittee, “NWP-MVCS”, “Mount Vernon Compressor Station”, or “the facility”) is required to have an Air Operating Permit because the facility has the potential to emit (PTE) greater than 100 tons per year for two criteria pollutants (carbon monoxide and nitrogen oxides), and more than 10 tons per year for formaldehyde, a Hazardous Air Pollutant (HAP). The facility also has the potential to emit more than 100,000 tons per year on a carbon dioxide equivalent (CO_{2e}) basis. These air pollutants are defined as regulated air pollutants in Chapter 173-401 Washington Administrative Code (WAC). See table 1-1 below for details on the facility’s PTE.

Table 1-1 Title V Applicability

Pollutant	Facility Annual PTE (TPY) ¹	Title V Threshold (TPY)	Title V (Yes/No)
NO _x	390	100	Yes
CO	460	100	Yes
VOC	32	100	No
SO ₂	1	100	No
PM ₁₀ & PM _{2.5}	12	100	No
Formaldehyde (HAP)	15	10	Yes
Total HAPs	22	25	No
CO _{2e}	109,643	100,000 ²	Yes ²

¹ Facility-wide annual PTE provided in AOP renewal application submitted by NWP-MVCS on 7/25/2023.

² Per WAC 173-401-200 (19) & (35), greenhouse gas emissions from a stationary source emitting, or having the potential to emit, 100,000 tpy CO₂ equivalent emissions (CO_{2e}), are subject to regulation under Chapter 173-401 WAC if the source is otherwise required to have an operating permit.

This Statement of Basis sets forth the legal and factual basis for the conditions in the NWP-MVCS AOP #002R4 and provides background information on the permit review.

1.1 AOP History

The AOP history for the facility is given below:

- On December 3, 1998, Northwest Clean Air Agency (NWCAA) issued the initial Air Operating Permit (AOP 002) for the facility. In May 2000, AOP 002 was modified to include an additional surrogate monitoring parameter in Section 5. In August 2001, AOP 002 was modified to update the name of the Corporate Responsible Official (RO).

- On January 1, 2007, NWCAA issued the first renewal permit (AOP 002R1). On April 20, 2009, AOP 002R1 was modified to i) change the name of the company from Northwest Pipeline Corporation to Northwest Pipeline GP, ii) change the name of the responsible official from Larry Hjalmarson to Barry Orgill, and iii) to update the AOP to NWCAA's AOP format; the modified AOP was issued as AOP 002R1M1.
- On July 12, 2012, NWCAA issued the second renewal AOP (AOP 002R2). AOP 002R2 included changes made to PSD-01-09 (Amendment 6) and the corresponding changes incorporated in OAC 794e. On June 5, 2014, AOP 002R2 was modified to reflect a company name change from Northwest Pipeline GP to Northwest Pipeline LLC; the modified AOP was issued as AOP 002R2M1.
- On August 16, 2019, NWCAA issued the third renewal AOP (AOP 002R3).
- On July 25, 2023, NWP-MVCS submitted an AOP renewal application; the renewal application was deemed timely and complete on August 14, 2023. Per the permit continuation clause in WAC 173-401-620(j), the facility may continue to operate until NWCAA issues the AOP renewal (AOP 002R4).

1.2 Changes in AOP #002R4

The primary changes from AOP 002R3 to AOP 002R4 are summarized below:

- In their July 25, 2023 permit renewal application, NWP-MVCS requested the following changes:
 - Update the Responsible Official from Glen Jasek to Camilo Amezquita; and
 - Update the AOP language to include the updated conditions of PSD 01-09, Amendment 7 (issued January 24, 2020) and OAC 794f (issued June 4, 2020).

The requested changes have been incorporated in AOP 002R4.

- Chapter 173-442 WAC, Washington State Clean Air Rule (CAR), was repealed effective 8/18/2023. All requirements of this rule have been removed from the AOP.
- The AOP formatting and language has been updated to current NWCAA standards.

Additional changes specific to each permit section are described in detail below.

1.2.1 General Information and Attest

The responsible official and corporate inspection contacts were updated to reflect personnel and responsibility changes at NWP-SCS.

Dates were updated to reflect dates for the renewal application received, AOP issuance and expiration, and renewal application submittal.

1.2.2 Section 2 Standard Terms and Conditions

AOP Section 2 (Standard Terms and Conditions) was updated with the latest NWCAA standard version of applicable requirements, any new or modified regulations, and updated reference dates.

Chapter 173-442 WAC, GHG Clean Air Rule (10/16/2016 effective date) established GHG emissions standards starting in 2017 for certain stationary sources, petroleum product producers and importers, and natural gas distributors. The regulation was implemented in its entirety by Ecology and was considered an applicable requirement under the Title V program. As such, it was included in NWP-MVCS's last AOP renewal (AOP 002R3). The rule was repealed effective 8/18/2023, and as such is no longer considered an applicable

requirement under the Title V program. Accordingly, all requirements of this rule have been removed in the AOP renewal (AOP 002R4)

1.2.3 Section 3 Standard Terms and Conditions for NSPS and NESHAP

AOP Section 3 (Standard Terms and Conditions for NSPS and NESHAP) was updated with the latest versions of applicable requirements, containing any new or modified regulations and updated reference dates.

There have been no changes in NSPS applicability for the facility since the issuance of AOP 002R3. 40 CFR Part 60 Subpart GG – Standards for Performance for Stationary Gas Turbines applies to the two gas turbines at the facility. No other NSPSs apply to the facility.

There have been no changes in NESHAP applicability for the facility since the issuance of AOP 002R3. 40 CFR Part 63 Subpart DDDDD – National Emissions Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, And Institutional Boilers and Process Heaters (aka the Boiler MACT) applies to both process heaters at the facility (B-Plant Sellers C-125-W water heater/boiler; and the C-Plant Sellers C-80-W water heater/boiler). Note that the SSM requirements of 40 CFR Part 63 Subpart A do not apply under Subpart DDDDD. No other NESHAPs apply to the facility.

1.2.4 Section 4 Generally Applicable Requirements

The following changes were made to Section 4 of AOP 002R4:

- Updated Chapter 173-400 WAC references to current applicable rule language and references.

1.2.5 Section 5 Specifically Applicable Requirements

The following changes were made to in Section 5 of AOP 002R4:

- Citations were updated and made consistent across all terms. Permit conditions/language updated and edited where needed.
- The conditions of PSD 01-09 Amendment 6 were updated to the conditions of PSD 01-09, Amendment 7 (issued January 24, 2020)
- The conditions of OAC 794e were updated to the conditions of OAC 794f (issued June 4, 2020).

SECTION 2 FACILITY DESCRIPTION

2.1 Facility Background and History

The Northwest Pipeline LLC operates a natural gas pipeline system from the Washington-Canada border near Sumas, Washington to the San Juan Gas Fields in New Mexico. The gas pipeline system serves commercial, industrial, utility, and cogeneration customers in Washington, Oregon, Nevada, and California. The Mount Vernon Compressor Station (NWP-MVCS) is located about 5 miles east of Mount Vernon, Washington, and assists in the transport of natural gas from the Sumas compressor station to the Snohomish compressor station. The Sumas and Mount Vernon stations are two of many natural gas compressor stations located approximately every 50 miles along the pipeline.

The NWP-MVCS was constructed in 1966, and initially consisted primarily of one Clark TCV-12 4000 horsepower (HP) reciprocating engine driving a reciprocating compressor. A second, identical engine/compressor set was added to the station in 1968. In 1991, a 5.25 MMBtu/hour natural gas boiler was installed to provide building heat and pre-heated water for the compressor engines.

In 1992, a 270-kilowatt standby emergency generator and a 2.5 MMBtu/hr natural gas boiler were installed. In 1993 one Solar Centaur T-4500 gas turbine and compressor set was installed. A Solar SoLoNO_x dry low-NO_x combustor was installed on the Solar Centaur T-4500 gas turbine in 1994. In 1998, a second mobile Solar Centaur gas turbine, model 40-T4700S, was permitted for installation/operation at the facility.

In 2003, the following modifications were made to increase the facility's capacity: A larger Solar Mars 90 gas turbine/compressor set was added, the existing Solar Centaur T-4500 turbine was replaced with a larger Solar Centaur 50 turbine, the existing 270 kW standby emergency generator was replaced with a larger 450 kW unit, and the 2.5 MMBtu/hr natural gas boiler was replaced with a larger 3.35 MMBtu/hr unit.

Details on the facility location and equipment layout are provided in the following figures:

Figure 2-1 shows the map location of the facility within Skagit County, Washington.

Figure 2-2 shows an aerial photograph of the facility.

Figure 2-3 shows the plot plan of the facility.

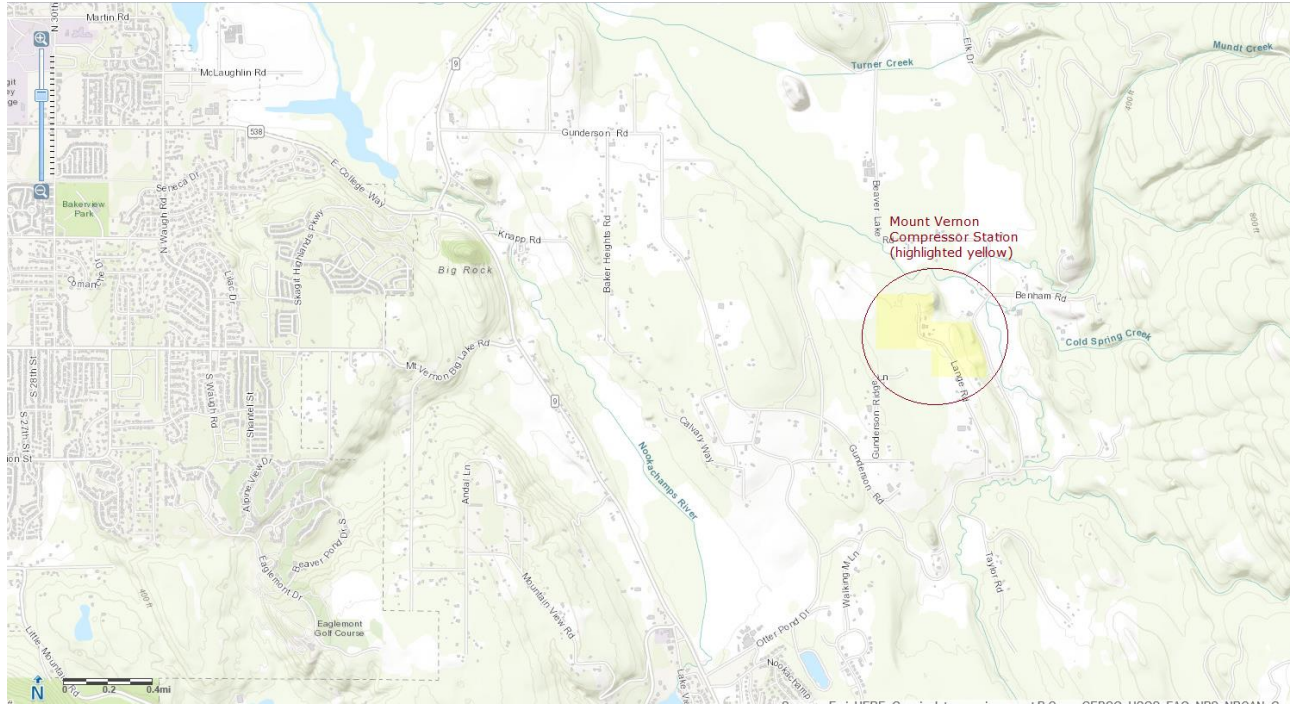


Figure 2-1: Location Map



Figure 2-2: Aerial photograph of NWP-MVCS from Google Earth (July 2018)

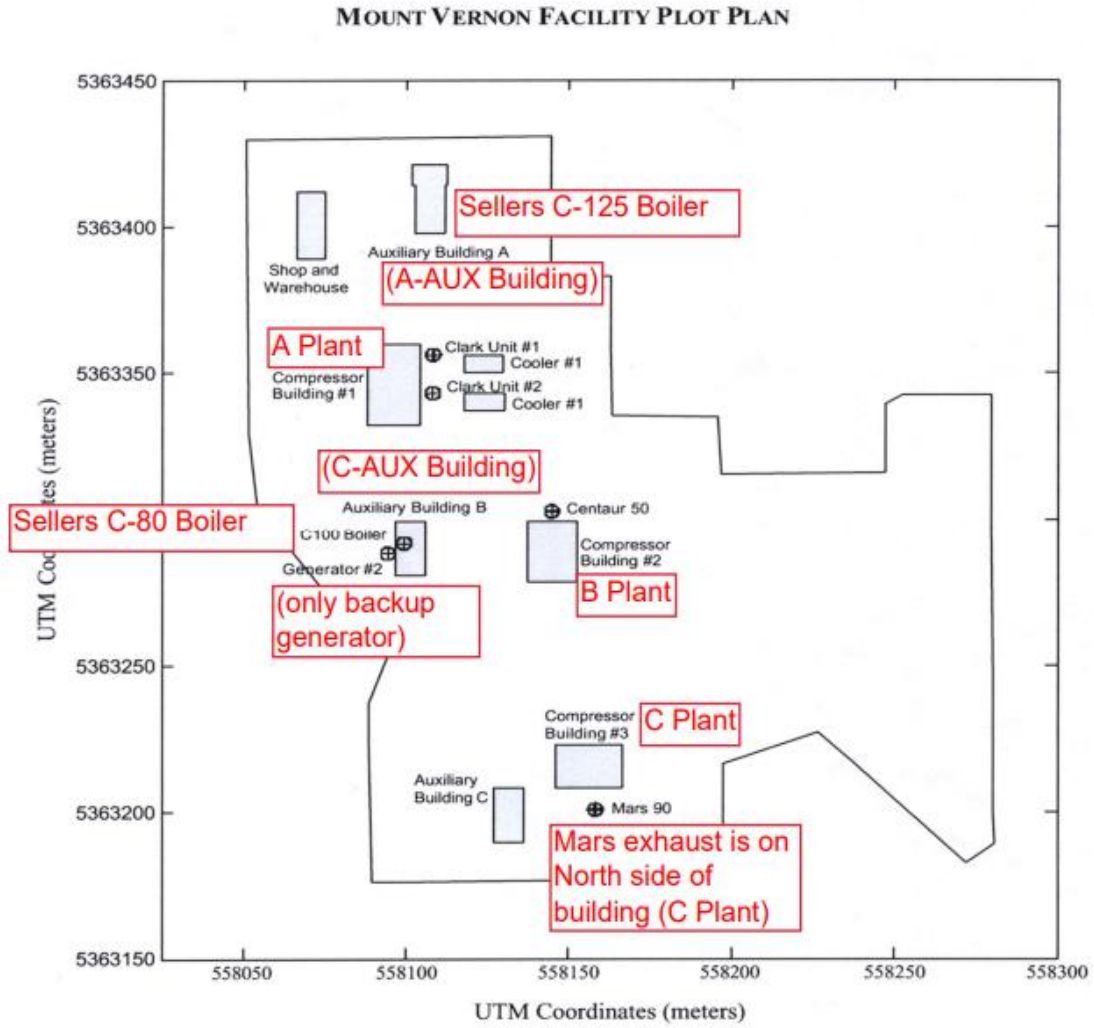


Figure 2-3: Site Plot Plan

2.2 Emission Units and Control

The emission units at the facility are listed in

Table 2-1. The primary emission units are the two Clark TCV -12 natural gas fired reciprocating engines (Units 1 and 2), the Solar Centaur 50 turbine (Unit 3) and the Solar Mars 90 turbine (Unit 4). Minor emission units are the Sellers C80 heater/boiler, the C125-W heater/boiler, and the 450kW standby generator. The mobile Solar Centaur 40-T4700S turbine is permitted to operate at the site on an as-needed basis, however it is kept at the NWP-Sumas site, and is very rarely located and operated at the NWP-MVCS site; as the unit is typically not a significant source of emissions from the facility. Additionally, minimal fugitive emissions occur from the gas pipeline and the fuel system servicing the turbines and reciprocating engines (i.e., fugitive losses from components in the pipeline and fuel delivery systems). All combustion sources at the facility are fueled with natural gas from the pipeline.

Table 2-1 Emission Unit Identification

Unit/ Location	Source and Description	Control Equipment	Fuel Type	Maximum Fuel Rate, MMBTU/hr	Install Date	Applicable NSR permit
1/ A-Plant	Clark TCV-12 4000 hp Reciprocating Engine, spark- ignited, two-stroke, lean burn**	None	Natural Gas	32.50	1966	none
2/ A-Plant	Clark TCV-12 4000 hp Reciprocating Engine, spark- ignited, two-stroke, lean burn**	None	Natural Gas	32.50	1966	none
3/ B-Plant	Solar Centaur T-6100S (50S) Gas Turbine	Dry low- NO _x control (SoLoNO _x)	Natural Gas	54.93	2003	PSD 01-09, Amendment 7; OAC 794f
4/ C-Plant	Solar Mars T-13002S (90S) Gas Turbine	Dry low- NO _x control (SoLoNO _x)	Natural Gas	113.22 100.03 @ 59 °F	2003	PSD 01-09, Amendment 7; OAC 794f
5/ Mobile	Solar Centaur 40-T4700S Gas Turbine*	Dry low- NO _x control (SoLoNO _x)	Natural Gas	39.78	2003*	OAC 657
6/ B-Plant	Sellers C-125-W water heater/boiler	None	Natural Gas	5.25	1991	OAC 311a
7/ C-Plant	Sellers C-80-W water heater/boiler	None	Natural Gas	3.35	2003	PSD 01-09, Amendment 7; OAC 794f
8/ B-Plant	Caterpillar-G3412, 450 kW emergency electrical generator**	Air-to-Fuel ratio controller & three-way catalyst	Natural Gas	1.6	2003	PSD 01-09, Amendment 7; OAC 794f

* This unit is moved to and operated at the Mount Vernon Compressor Station on an as-needed basis. The unit last operated at the NWP-MWCS facility in 2004 when the two Clark TCV-12 engines were out-of-service.)

2.3 Emissions Inventory

The facility-wide emission history for 2018 - 2022, as reported on the annual emission inventories submitted to NWCAA, is given below. Table 2-2 shows the facility-wide emissions history for criteria pollutants reported by the facility in tons per year. Table 2-3 shows the facility-wide emissions history of formaldehyde and total HAPs reported by the facility, in pounds per year.

Table 2-2 NWP-MVCS Annual Emissions of Criteria Pollutants, Tons per Year

Criteria pollutant	Year				
	2018	2019	2020	2021	2022
NO _x	138.06	98.91	54.12	168.34	188.91
CO	114.48	76.41	34.57	151.03	183.59
VOC	8.39	5.13	2.96	7.9	9.62
PM ₁₀	3.65	2.25	1.45	3.47	4.19
SO ₂	0.59	0.42	0.29	0.59	0.69

Table 2-3 NWP-MVCS Annual Emissions of Formaldehyde and total HAPs, Pounds per Year

Hazardous Air Pollutant (HAP)	Year				
	2018	2019	2020	2021	2022
Formaldehyde	8,215	4,972	2,917	7,676	9,390
Total HAPs	11,009	6,663	3,911	10,287	12,583

2.4 Monitoring and Testing History

In 1994, the facility applied for and received permission from the Washington State Department of Ecology (WDOE) and the Northwest Clean Air Agency (NWCAA) to develop and install a predictive emissions monitoring system (PEMS) for the Solar Centaur 40 gas turbine. The PEMS was completed and tested with Relative Accuracy Test Audits (RATAs) to meet the requirements of Title 40 Code of Federal Regulations Appendices B and F.

In July 1996, the permittee requested approval to replace the PEMS at the Mount Vernon Compressor Station with periodic testing and calculated emissions, based on the stack test data, hours of operation, and fuel usage. This decision was based on the RATA results and additional testing done by NWP-MVCS. Approval was given by the Washington Department of Ecology and the NWCAA, with the condition that the gas turbine would be tested once every twelve months for two years. Furthermore, the parties agreed that NWP-MVCS would conduct stack tests on one of the two identical reciprocating engines every five years.

As part of the original AOP development process, it became evident that the periodic stack testing agreement between NWP-MVCS, NWCAA, and WDOE was not acceptable to EPA Region 10 as periodic monitoring requirements under WAC 173-401-605(1) and 173-401-615(1) and (2). In response, the permittee developed and submitted a monitoring plan describing surrogate parameter monitoring and operation and maintenance procedures. The plan was designed to comply with both PSD permit conditions and the periodic monitoring

requirements of the operating permit program. Surrogate parametric emissions monitoring (PEMS¹) proposed in the Monitoring Plan replaced the proposed predictive system and were incorporated into the AOP.

In March 1999, an engine malfunction at Unit #8 at the Sumas Compressor Station was detected during a compliance source test. Because of a failed clamp ring within the turbine, NO_x emissions were abnormally high. While the malfunction would have eventually caused an engine shutdown, it was evident to both the NWCAA and the facility managers that the surrogate monitoring parameters were not adequate to detect this type of mechanical failure. Because WAC 173-401-600 requires that each permit contain terms and conditions that assure compliance with all applicable requirements at the time of permit issuance, and as the surrogate monitoring parameters were insufficient to assure compliance, the NWCAA requested a submittal of additional monitoring parameters for both compressor stations. The facility managers submitted a letter on October 25, 1999, suggesting additional monitoring parameters. A letter to the NWCAA, dated December 11, 1999, further clarified the parameters.

With the shutdown of the Solar Centaur 40 turbine and the contemplated addition of two new turbines (Solar Centaur 50 and Solar Mars 90) at the Mount Vernon Station in 2003, NWP-MVCS again proposed a PEMS system to continuously monitor NO_x emissions from the two turbines. Required operating conditions for the PEMS were written into PSP Permit 01-09 and OAC 794.

In November 2003, Unit #8 at the Sumas Compressor Station again failed to demonstrate compliance during a compliance test due to a malfunction. As in 1999, the PEMS system did not indicate a compliance problem and failed to serve its primary purpose. WDOE, NWCAA, and NWP-MVCS subsequently agreed that the PEMS was ineffective and would be replaced by a monitoring procedure using a portable emission analyzer measuring emissions on a prescribed schedule as detailed in PSD-01-09 Second Amendment and NWCAA OAC 793b. For the three Solar Mars turbines, this schedule required monitoring at least every 336 hours of operation.

In 2006, NWP-MVCS requested that the testing frequency for the portable analyzers be reduced from once every 336 hours of operation (approximately every 2 weeks) to every 672 hours of operation (approximately every month). Three years of testing with the portable analyzers showed them to be effective. Accordingly, the NWCAA issued OAC 794d and WDOE issued PSD-01-09 Amendment 5, which both include an option for reduced testing.

In 2011, NWP-MVCS requested a sixth amendment to PSD-01-09, to clarify and simplify NO_x monitoring and reporting. Specifically, WDOE determined it no was longer necessary to report NO_x mass flow during the periodic portable monitor testing. However, if noncompliance is indicated, NWP-MVCS must shutdown the turbine as soon as reasonably possible and repair the unit, rather than have further emissions testing. OAC 794d was revised (becoming OAC 749e) to reflect changes in the PSD that were mirrored for CO monitoring and to remove a one-time initial stack test condition that was completed.

In 2020, NWP-MVCS requested a seventh amendment to PSD-01-09, to change the NO_x monitoring requirements for the Mars 90S and Centaur 50S combustion turbines to monitor NO_x emissions using a portable emission analyzer at least once every 4,380 hours of operation. The reduced frequency was approved for the reasons stated in the Northwest Pipeline Technical Support Document for PSD Permit 01-09 Amendment 7:

¹ Note that the acronym "PEMS" was used for both the predictive emissions monitoring system and later parametric emissions monitoring system.

“Considering the size of the turbines and relatively low excess emission rate if exceedance did occurred, Ecology finds that annual compliance demonstration using EPA reference method and occasional monitoring using portable analyzer should be sufficient to ensure compliance. However, in addition to monitor the emission using portable analyzer at least once every 4,380 hours of operation, Ecology finds that NWP shall also demonstrate compliance using reference method after each engine exchange because the past historical events indicates that the exceedance could occur after the exchange. If engine exchange occurs within the same annual test frequency period, the reference test conducted after engine exchange can be used to satisfy annual compliance test requirement.”

In addition to the monitoring described above, PSD 01-09 Amendment 7 requires that NWP-MVCS stack test the turbine according to frequency given in Table 2-4 below:

Table 2-4 NWP-MVCS Turbine Stack Test Frequency*

POLLUTANT	TEST METHOD	FREQUENCY
Opacity of emissions	Method 9	Annual
Carbon monoxide (CO)	Method 10	Annual
Nitrogen oxides (NO _x)	Method 20	Annual

* Note that this does not apply to the mobile turbine.

2.5 Compliance History

2.5.1 Notices of Violation

The Northwest Pipeline LLC, Mount Vernon Compressor Station was initially registered by the NWCAA on May 31, 1990. There were no notices of violations (NOV) issued between the initial registration date and October 2003. Between October 2003 and the date of this Statement of Basis, four NOV's have been issued to the facility. Each NOV is described below:

- On October 16, 2003, the facility was issued a “Notice of Violation-Warning” as a result of a facility inspection by NWCAA. The inspection found that the facility was not performing continuous monitoring as required by PSD 01-09 and OAC 794a. Specifically, the PEMS were not set up to display the ongoing emissions of NO_x in the same units as required by relevant sections of the PSD and NWCAA permits. Additionally, CO was not being monitored as required by OAC 794a. MWP-MVCS agreed to correct these issues and include this information in their data acquisition system. Subsequently, the PEMS system was abandoned and replaced with scheduled periodic monitoring and testing of the units.
- NOV #3658 was issued 12/10/2007 for violation of the CO limit given in AOP Term 5.7. On October 8, 2007, Northwest Pipeline failed to demonstrate compliance with the CO emission limit during a scheduled EPA reference method stack test. The reference method test of Unit #4 (Solar Mars 90S Gas Turbine) was aborted when it became clear that the unit would not be in compliance with the CO emission limit of 50 ppmvd (corrected to 15% O₂) over a one hour average.
- NOV's #4210 and #4210a were issued 9/15/2016 and 9/19/2016, respectively for violation of the NO_x emission limit given in AOP Term 5.11 and PSD-01-09 Amendment 6. During periodic portable analyzer monitoring on December 2 and 14, 2015 and February 2, 2016, Unit #4 (Solar Mars 90S Gas Turbine) exceeded the NO_x limit of 25 ppmvd @ 15% oxygen. NWP-MVCS discovered the excess emissions

on February 10, 2016 while preparing the quarterly report, and immediately corrected turbine operations and notified the agency. Records demonstrated excess emissions for a total of 791 hours and 998 pounds of NOX.

- NOV #4211 was issued 9/15/16 for failure to submit the annual compliance certification report for calendar year 2015, as required by AOP Term 2.4.1. In June 2016, NWCAA identified that the 2015 annual compliance certification was not submitted by the due date of February 28, 2016. NWP-MVCS submitted the report late on June 14, 2016.

2.5.2 Compliance Reporting

The NWP-MVCS AOP requires submittal of periodic, quarterly, semiannual, and annual reports to the NWCAA as part of the facility's ongoing compliance demonstration. When a permit deviation occurs, the facility is required to submit a periodic report within 30 days after the end of the month during which the deviation occurred identifying any excess emissions and provide a discussion as to the cause and what was done to correct the problem. In the case where the deviation represents a potential threat to human health or safety "prompt" means as soon as possible, but in no case later than twelve hours after the deviation is discovered.

The facility submits quarterly summary reports of emissions and process information. In addition, semiannual reports are submitted providing for the certification by the responsible corporate official of the truth, accuracy, and completeness of reports submitted during the previous six-month period. Annually, the responsible corporate official also certifies compliance with all requirements in the AOP term-by-term and whether the facility was fully or intermittently in compliance with each term.

2.6 Permitting History

2.6.1 Prevention of Significant Deterioration

The Washington State Department of Ecology (WDOE) is the permitting authority in Washington state for issuance of Prevention of Significant Deterioration (PSD) permits for new major stationary sources and major modifications to major stationary sources. The WDOE has issued two PSD permits for the NWP-MVCW facility: PSD 93-01 and PSD 01-09. Each PSD permit is described below:

2.6.1.1 PSD permit 93-01

PSD permit 93-01 was issued July 14, 1993, for installation of one Solar Centaur T-4500 gas-fired turbine (Unit 3).

PSD permit 93-01 Amendment 1 was issued on May 11, 1998. This amendment incorporated several minor changes into the permit. These included a clarification of source test frequency requirements, a reduction of the NO_x averaging period from a rolling 24-hour average to an hourly average, and stack tests of the existing reciprocating compressor engines.

In 1998, the turbine permitted under PSD permit 93-01 Amendment 1 was removed from the facility and replaced with turbines permitted under PSD permit 01-09.

It is the policy of WDOE that old PSD permits are not necessarily superseded by newer PSD permits and that all of the still applicable requirements of PSD Permit are in effect (i.e., facility-wide requirements). Accordingly, the still applicable requirements of PSD Permit 93-01 Amendment 1 that apply to the whole facility or equipment still in place are included in the AOP.

2.6.1.2 PSD permit 01-09

PSD Permit 01-09 was issued on July 31, 2002. This permit was initiated by the following project:

- Adding one Mars 90-TI3002S (Mars 90S) gas turbine site-rated at 12,787 horsepower (59° F.),
- Adding one Centaur 40-T4700S (Centaur 40S) gas turbine site-rated at 4,554 horsepower (59° F.),
- Replacing an existing standby generator with one of larger capacity (450 kW), and
- Replacing an existing 2.5 million British thermal units per hour (MMBtu/hr.) heater/boiler with one of larger capacity (4.186 MMBtu/hr. Sellers C100).

The conditions contained in PSD 01-09 are detailed and extensive and identify fuel usage (natural gas from the pipeline), emission limitations for NO_x (in terms of ppm, lbs/day and tons/year), monitoring and reporting requirements, PEMS operating criteria, hours of operation for the standby emergency generator, and other operating and monitoring criteria.

PSD-01-09 Amendment 1 was issued on May 9, 2003, and was necessary because NWP-MVCS changed the project scope. The new scope (shown below) was changed in that NWP-MVCS chose to remove the existing Solar Centaur 40-T4700 permitted under PSD 93-01 and replace it with a larger Solar Centaur 50S rather than keeping the existing turbine and adding another Centaur 40S as was originally permitted in PSD 01-09. The revised scope included:

Adding one Mars 90-TI3002S (Mars 90S) gas turbine site-rated at 12,787 horsepower (59° F.) as originally permitted.

Substituting an a Centaur 50-T6100S (Centaur 50S) at 5,950 hp (59° F.) for the originally permitted Centaur 40-T4700S (Centaur 40S) gas turbine site-rated at 4,554 horsepower.

Replacing an existing standby generator with one of larger capacity (450 kW) as originally permitted.

Replacing an existing 2.5 million British thermal units per hour (MMBtu/hr.) heater/boiler with one of larger capacity (4.186 MMBtu/hr. Sellers C100) as originally permitted.

After completion of one year of operation, it was determined that the parametric monitoring system (PEMS) could not provide accurate real time monitoring of emissions from the turbines. WDOE, the NWCAA, and NWP-MVCS subsequently agreed that the PEMS would be replaced by a monitoring procedure using a portable emission analyzer measuring emissions on a prescribed schedule.

PSD-01-09 Second Amendment was issued on July 15, 2004, and replaced the PEMS monitoring with periodic monitoring using portable analyzers. There were no changes to emission limits. For the Solar turbines, the schedule requires monitoring not less frequently than once every 336 hours of operation.

PSD-01-09 Amendment 3 was issued on August 23, 2004, and clarified some monitoring requirements. WDOE made the annual NO_x tests for the turbines easier to find in the permit and at NWP-MVCS's request changed the portable NO_x analyzer to a portable "emissions" analyzer.

PSD-01-09 Amendment 4 was issued on January 4, 2005, and was issued to reflect the fact that NWP-MVCS installed a Sellers C-80 boiler rather than the originally permitted Sellers C-100 boiler. The C-80 is smaller and emits less, so there was no related enforcement. As the permit was to be opened anyway, NWP-MVCS requested that the NO_x monitoring frequency

for the Sellers C-80 be reduced from annually to every 5 years. This request was granted by WDOE and is reflected in this permit amendment.

PSD-01-09 Amendment 5 was issued on June 14, 2006, and was issued to allow for reduced NO_x monitoring of the turbines using the portable monitors. Amendment 5 allows the monitoring frequency to be reduced from every 336 operating hours (in practice about every 2 weeks) to every 672 operating hours (in practice about every month). The monitoring frequency reverts to the 336-hour schedule should a unit fail a test.

PSD-01-09 Amendment 6 was issued on February 22, 2012. The purpose of the sixth amendment was to clarify and simplify NO_x monitoring procedures used by portable NO_x monitors in preparation for renewal of the facility's Title V permit. Testing using a portable analyzer to monitor the volume percent of NO_x every 336 hours proved adequate to indicate compliance, so the additional calculation of NO_x mass flow during these periodic tests is no longer required. If non-compliance is indicated by a portable monitor test, the turbine is shut down as soon as reasonably possible and repaired rather than have further emissions testing. No compliance testing conditions for NO_x (reference Method 20) were affected by these changes, but the NO_x limit's averaging time was reduced from a three to one hour time period, which is more stringent.

PSD-01-09 Amendment 7 was issued on January 24, 2020. Per review and approval of NWP's requested changes to PSD-01-09, the following revision were made to the PSD permit:

- Revision of the nitrogen oxide (NO_x) monitoring requirements for the Mars 90S and Centaur 50S combustion turbines to monitor NO_x emissions using a portable emission analyzer at least once every 4,380 hours of operation.
- Removal of the requirement to verify the accuracy of portable analyzers not less than once every calendar year in conjunction with the stack tests.
- Streamlining of the existing permit conditions to provide better clarity on the requirements.

Both PSD permits have several requirements for specific equipment at the facility and are considered applicable requirements under Chapter 173-401 WAC. These requirements are included in Section 5 (Specifically Applicable Requirements) of the AOP.

2.6.2 Northwest Clean Air Agency Orders of Approval to Construct

NWCAA is the permitting authority for issuance of permits (Orders of Approval to Construct) for new non-PSD major sources and modifications to non-major stationary sources within NWCAA's jurisdiction. NWCAA has issued five Orders of Approval to Construct (OAC) for equipment at the NWP-MVCS facility. Each OAC is described below.

2.6.2.1 NWCAA Order of Approval to Construct No. 311

OAC 311 was issued February 6, 1991, and revised March 28, 1991, for installation of a Sellers C-125-W natural gas fired water heater/boiler (rated at 5.25 MMBTU/hr).

2.6.2.2 NWCAA Order of Approval to Construct No. 320

OAC 320 was issued July 15, 1992, and revised on revised April 2, 1993, May 8, 1995, and July 22, 1997, installation of a Solar Centaur T4500 gas-fired turbine. Note that OAC #320 has been superseded by OAC 794.

2.6.2.3 NWCAA Order of Approval to Construct No. 402

OAC 402 was issued October 21, 1992, for installation of one Sellers C-60 water heater/boiler (rated at 2.5 MMBTU/hr) and one natural gas fired 250 kW standby emergency generator. Note that OAC #402 has been superseded by OAC 794.

2.6.2.4 NWCAA Order of Approval to Construct No. 657

OAC 657 was issued May 12, 1998, for periodic location and operation of a mobile Solar Centaur 40-T4700S natural gas-fired turbine at the facility. Note that the mobile unit is only brought on site in the case of reciprocating engine failure. The mobile unit is generally kept at NWP-Sumas facility when not in use).

2.6.2.5 NWCAA Order of Approval to Construct No. 794

OAC 794 was issued August 12, 2002 for installation of the following equipment:

- Solar Mars 90-TI3002S (Mars 90S) gas turbine;
- Solar Centaur 40 T4700S (Centaur 40S) gas turbine;
- 450 kW standby emergency generator; and
- Sellers C-100 water heater/boiler.

OAC 794a was issued on March 4, 2003. OAC 794a superseded OACs 320 and 402 and imposed additional conditions beyond those contained in PSD 01-09 on the facility. These include limits for CO and VOC emission (in lbs/day and tons/year), revised reporting requirements, and requirements for initial and subsequent testing for the turbines according to the schedule shown in Table 2-4. Additionally, OAC 794a included a requirement that NWP-MVCS perform boroscope analysis on the two turbines on a regularly scheduled basis, and visually inspect the fuel injectors at prescribed intervals.

OAC 794b was issued August 9, 2004 to change the monitoring program from using the PEMS methodology to a monitoring emissions with a portable emissions analyzer using EPA Conditional Test Method 34.

OAC 794c was issued on January 11, 2005 to identify two source changes: a Sellers C-80 boiler/heater was installed instead of the originally approved Sellers C100 unit, and change the existing Solar Centaur 40 T-4700S (Centaur 40S) Turbine-Driven Centrifugal Compressor to a Solar Centaur 50 T-6100S (Centaur 50S) Turbine-Driven Centrifugal Compressor [*Note: these equipment changes were noted in PSD-01-09 Amendment 1*]. Additionally, the monitoring requirements were revised for the equipment.

OAC 794d was issued on August 30, 2006, to allow an option for reduced monitoring of the gas turbines.

OAC 794e was issued on March 26, 2012, to i) modify CO testing requirements to be consistent with NO_x testing requirements in PSD-01-09 Amendment 6 and ii) remove the VOC limit because initial testing was completed.

OAC 794f was issued on June 4, 2020. The purpose of this revision was to change the OAC monitoring conditions to be consistent with the PSD 01-09 Amendment 7 monitoring conditions. Specifically, OAC 794f increased the monitoring period to 4,380 hours for CO (this is consistent with NO_x monitoring period given in PSD 01-09 Amendment 7).

All applicable OAC requirements are included in Sections 4 and 5 of the AOP.

SECTION 3 BASIS OF REGULATION APPLICABILITY

3.1 New Source Performance Standards (NSPS)

3.1.1 40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines

The Solar Centaur 90 gas turbine (started up on June 2, 2003), and the Solar Centaur 50 gas turbine (started up on June 25, 2003), are subject to the requirements of 40 CFR 60 Subpart GG. Subpart GG specifies standards for nitrogen oxides and sulfur dioxide, monitoring requirements, and test methods and procedures. Compliance and associated monitoring with the Subpart GG standards are included in Section 5 of the AOP – Specifically Applicable Requirements of the permit.

Note that the general provisions of the NSPS (40 CFR 60 Subpart A) also apply. The applicable provisions of 40 CFR 60 Subpart A are included in Section 3 of the AOP - Standard Terms and Conditions of the permit.

3.1.2 40 CFR 60 Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines applicability

NWP-MVCS operates three spark ignition reciprocating internal combustion engines at the facility. Subpart JJJJ applies to only engines that were constructed, modified, or reconstructed after June 12, 2006. In this case, all three engines were constructed prior to June 12, 2006, and the engines have been modified or reconstructed since initial construction, so the rule does not apply to these units. Note that the engines are not compression ignition units. Therefore, they are also not subject to the requirements of 40 CFR 60 Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

3.2 National Emission Standards for Hazardous Air Pollutants (NESHAP)

3.2.1 40 CFR Part 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, And Institutional Boilers And Process Heaters

Subpart DDDDD applies to boilers and process heaters located at major sources of HAPs. NWP-MVCS is a major source of HAPs and operates two affected boilers/process heaters:

- B-Plant, Unit 6 – Sellers C-125-W 5.25 MMBtu/hr Natural Gas Heater/Boiler installed in 1991
- C-Plant, Unit 7 – Sellers C-80-W 3.35 MMBtu/hr Natural Gas Heater/Boiler installed in 2003

Because of the size of these units (5.25 MMBtu/hr and 3.35 MMBtu/hr) and fuel burned (only natural gas), Subpart DDDDD does not specify any emission limitations for the units. The only parts of Subpart DDDDD that apply to these units are the following tune-up, work practice, maintenance, reporting, and record keeping requirements: 40 CFR §63.7500 (a) & (e); 40 CFR §63.7505 (a); 40 CFR §63.7515 (d); 40 CFR §63.7540 (a)(10) & (a)(12); 40 CFR §63.7550 (a), (b), (c)(1) & (c)(5), (h)(3), and Table 9; and 40 CFR §63.7555 (a). These requirements are included in Section 5 of the AOP.

3.2.2 40 CFR 63 Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines applicability

Subpart ZZZZ applies to stationary reciprocating internal combustion engines (RICE) at major or area sources of HAP emissions. The NWP-MVCS facility is a major source of HAP emissions and operates the following three RICE:

- Unit 1 (A-Plant) - 4,000 HP 2SLB Clark TCV-12 installed in 1966
- Unit 2 (A-Plant) - 4,000 HP 2SLB Clark TCV-12 installed in 1966
- Unit 8 (B-Plant) - 545 HP 4SRB Caterpillar emergency backup installed in 2003

Per §63.6590 (a)(1)(i) of Subpart ZZZZ, Units 1 & 2 are considered to be existing stationary RICE because each engine has a site rating greater than 500 hp, is at a major source of HAPs, and commenced construction prior to December 19, 2002, as per §63.6590 (a)(1)(i). However, per §63.6590 (b)(3)(i) and §63.6600(c), existing stationary RICE with a site rating of more than 500 brake HP do not have to meet the requirements of subparts ZZZZ and subpart A, including emission limitations and initial notification requirements. Therefore, Subpart ZZZZ does not have any applicable requirements for Units 1 & 2.

Per §63.6590 (a)(2)(i) of Subpart ZZZZ, Unit 8 is considered to be a existing stationary RICE because the engine has a rating greater than 500 HP, is at a major source of HAPs and commenced construction after December 19, 2002 [Note: installation of the unit was completed in 2003, however construction of the unit was commenced prior to December 19, 2002, so the unit meets the definition of an existing stationary source]. However, per §63.6590 (b)(3)(iii) and §63.6600(c), an existing stationary RICE with a site rating of more than 500 brake HP do not have to meet the requirements of subparts ZZZZ and subpart A, including emission limitations and initial notification requirements. Therefore, Subpart ZZZZ does not have any applicable requirements for Unit 8.

3.3 Compliance Assurance Monitoring (CAM)

40 CFR Part 64 (Compliance Assurance Monitoring aka CAM) requires monitoring sufficient to provide a reasonable assurance of compliance with the applicable requirements (e.g., emissions limits) and to ensure operators pay the same level of attention to pollution control measures as to production activities. The rule applies to each pollutant-specific emissions unit (PSEU) at a facility that meets the following criteria:

- Is located at major source subject to Title V operating permits program [40 CFR 64.2(a)(1)]; and
- Is subject to an emission limitation and has a control device to meet that limit (e.g., electrostatic precipitators, scrubbers, fabric filters) [40 CFR 64.2(a)(2)]; and
- Has pre-controlled criteria pollutant emissions > major source size threshold (e.g., >100 tons/year uncontrolled emissions) [40 CFR 64.2(a)(3)].

None of the emission units at the NWP-MVCS facility are subject to CAM. Table 3-1 shows the CAM applicability review for the emission units at the facility.

Table 3-1 CAM Applicability

Emissions unit/location	Emission Unit Description	Pollutant emission limit?*	APC Used to Control Pollutant?	Pre-Controlled PTE > 100 tpy?)	CAM Applies?
1/ A-Plant	Clark TCV-12 4000 hp Reciprocating Engine	None	None	Yes for NOx and CO	No per 40 CFR 64.2(a) (1&2)
2/ A-Plant	Clark TCV-12 4000 hp Reciprocating Engine	None	None	Yes for NOx and CO	No per 40 CFR 64.2(a) (1&2)
3/ B-Plant	Solar Centaur T-6100S (50S) Gas Turbine	CO limits: 18.5 tons/yr; 106 lb/calendar day; 50 ppmvd at 15% O2 NOx limits: 8.5 tons/yr; 256 lb/calendar day; 25 ppmvd at 15% O2	None**	No	No per 40 CFR 64.2(a) (2)
4/ C-Plant	Solar Mars T- 13002S (90S) Gas Turbine	CO limits: 46.4 tons/yr; 50 ppmvd at 15% O2 NOx limit: 25 ppmvd at 15% O2	None**	No	No per 40 CFR 64.2(a) (2)
5/ Mobile	Solar Centaur 40-T4700S Gas Turbine	CO limits: 24.1 tons/yr; 5.50 lbs/hr; 50 ppmvd at 15% O2 NOx limits: 33.2 ton/yr: 7.59 lb/hr; 42 ppmvd at 15% O2	None**	No	No per 40 CFR 64.2(a) (2)
6/ B-Plant	Sellers C-125- W water heater/boiler	None	None	No	No per 40 CFR 64.2(a) (1&2)
7/ C-Plant	Sellers C-80-W water heater/boiler	NOx limits: 0.66 tons in any consecutive 12- month period; 4 lb/day; 34 ppmvd at 3% O2	None	No	No per 40 CFR 64.2(a) (2)
8/ B-Plant	Caterpillar- G3412, 450 kW emergency electrical generator	NOx limit: 82 grams/hr	Air-to-Fuel ratio controller & three- way catalyst	No	No per 40 CFR 64.2(a) (3)

* The most stringent emission limit is listed for each applicable pollutant.

** The SoLoNOx controls used on the gas compressor turbines (Units 3, 4, and 5) are considered passive control measures, built into the unit, that act to prevent pollutant formation. These types of emission controls are specifically excluded from the definition of "air pollution control device" for CAM.

3.4 Chemical Accident Prevention Provisions

The goal of 40 CFR 68 and the risk management program it requires is to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur. If a tank, drum, container, pipe, or other process at a facility contains any of the substances listed in Table 1 to 40 CFR 68.130 in an amount above the “threshold quantity” specified for that substance, the facility operator is required to develop and implement a risk management program.

According to NWP-MVCS’s renewal application, the facility does not have any of the substances in the threshold quantities listed in Table 1 to 40 CFR 68.130 and therefore it is not subject to the requirements of 40 CFR 68.

3.5 New Source Review (NSR)

3.5.1 Basic Information

New Source Review requires stationary sources of air pollution to acquire permits before they begin construction. NSR is also referred to as construction permitting or preconstruction permitting.

There are three types of NSR permits. Based on the stationary type and emissions, one or more of the following permits may be required:

- Prevention of Significant Deterioration (PSD) permits, which are required for new major sources or a major source making a major modification in an attainment² area;
- Nonattainment NSR permits, which are required for new major sources or major sources making a major modification in a nonattainment area; and
- Minor source permits, which are required for sources that emit pollutants below the major source threshold but above the minor source threshold. It is generally the case that a major new or modified source will also require minor NSR permitting that covers a different subset of pollutants.

NWP-MVCS is located in an area that is in attainment for all pollutants. Therefore, only PSD permits and minor source permits are required for projects at the facility.

3.5.2 What are Permits?

Permits are legal documents that the source must follow. Permits specify what emission limits must not be exceeded and how the source is to demonstrate compliance with the set limits. Permits may contain conditions to ensure that the source is built according to the permit application upon which the permitting agency relies for air impact analysis. For example, the permit may specify a stack height that was used by the permitting agency to determine compliance with air pollutant limits. Some limits in the permit may be specified at the request of the source to keep them from being subject to other requirements. For example, the source may take limits in a minor NSR permit to keep the source out of PSD. To assure that sources follow permit requirements, permits also contain monitoring, recordkeeping, and reporting (MR&R) requirements.

3.5.3 Who Issues the Permits?

In Washington State most NSR permits are issued by the Washington State Department of Ecology (“Ecology”) or local air pollution control agencies like NWCAA. The EPA may issue

² An attainment area means a geographic area designated by EPA at 40 CFR 81 as having attained the National Ambient Air Quality Standard for a given criteria pollutant (Reference: WAC 173-400-030 (9)).

permits in some cases, but this option is very rare. Ecology and local air pollution control agencies have their own permit programs that are approved by EPA in the State Implementation Plan (SIP). In general, in the NWCAA jurisdiction, which encompasses Island, Skagit, and Whatcom Counties, Ecology issues major NSR permits (PSD permits) and NWCAA issues minor NSR permits (Orders of Approval to Construct, or OACs).

3.5.4 Prevention of Significant Deterioration

Before a major source can be constructed or modified in an area that meets all the health-based ambient air requirements (i.e. in an attainment area), the owner or operator must demonstrate that the project will not cause or contribute to violations of any ambient air quality standard or air quality increment. In addition, the owner or operator must demonstrate that the project will not cause significant deterioration in nearby Class I Areas (parks and wilderness areas).

NWP-MVCS is subject to the PSD program, and WDOE has issued two PSDs for the facility. These PSD permits are described in Section 2.6.1.

3.5.5 Minor NSR

New or modified sources of air pollution are required to obtain a permit from the NWCAA before beginning construction. Permits are referred to as Orders of Approval to Construct (OACs) and contain a wide range of local, state, and federal requirements to minimize air pollution impacts on the environment. The type of activity, the size of the operation, and the kinds of pollutants emitted determine permit conditions.

Five minor NSR permits have been issued by NWCAA to NWP-MVCS, as described in SOB Section 2.6.2.

3.6 Greenhouse Gases (GHG) Regulations

Greenhouse gases are chemicals that contribute to climate change by trapping heat in the atmosphere. The greenhouse gases recognized by EPA and Ecology are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF₆). "Hydrofluorocarbons" or "HFC" means a class of greenhouse gases primarily used as refrigerants, consisting of hydrogen, fluorine, and carbon.

NWP-MVCS is required to meet the following federal and state greenhouse gas emission requirements, as applicable.

3.6.1 40 CFR 98, Federal Mandatory Greenhouse Gas Emission Inventory Regulation

In order for a facility to be subject to 40 CFR 98, it must meet the requirements of 1, 2, or 3 below:

1. A facility that contains any source category that is listed in Table A-3 of 40 CFR 98 Subpart A.
2. A facility that contains any source category that is listed in Table A-4 of 40 CFR 98 Subpart A that emits 25,000 metric tons CO₂e or more per year in combined emissions from stationary fuel combustion units.
3. A facility that has stationary fuel combustion units with an aggregate maximum rated heat input of 30 MMBtu/hr or greater, and the facility emits 25,000 metric tons CO₂e or more per year in combined emissions from all stationary fuel combustion sources.

Per review of the AOP renewal application submitted to the NWCAA, stationary fuel combustion units subject to the rule have an aggregate maximum rated heat input capacity greater than 30 MMBtu/hr with an estimated PTE of 99,500 metric tons of CO₂e (note this estimate was based on 8,760 hours of operation per year for each piece of equipment; this value is different than the value in Table 1-1 above because the units are “metric tons” here, and not “short tons” or “tons” as in Table 1-1). Per review of reported fuel usages on the 2023 emission inventory submitted to NWCAA, actual 2023 CO₂e emissions from applicable units at the facility were 64,985 tons (58,941 metric tons).

This regulation applies to NWP-MVCS due to its GHG emission levels and type of facility (Onshore Natural Gas Transmission Compression). The rule requires annual GHG inventories and reporting beginning in calendar year 2010, with reports due to EPA by no later than March 31 of the following year.

The requirements for the mandatory greenhouse gas reporting are contained in 40 CFR 98. EPA implements this regulation in its entirety. Per review of WAC 173-401-200(4), this regulation is not considered an applicable requirement with respect to the Title V Air Operating Permit program, and as such, is excluded from inclusion in a Title V air operating permit.

3.6.2 WAC 173-441, Washington State Reporting of Emissions of Greenhouse Gases

Chapter 173-441 WAC, “Reporting of Emissions of Greenhouse Gases”, is a mandatory greenhouse gas (GHG) reporting rule for:

- Suppliers that supply applicable fuels sold in Washington State of which the complete combustion or oxidation would result in at least 10,000 metric tons of carbon dioxide annually; or
- Any listed facility that emits at least 10,000 metric tons of CO₂-equivalents (CO₂e) of greenhouse gases annually in the state.

WAC 173-441 was adopted by Ecology on December 1, 2010 and became effective on January 1, 2011. This regulation applies to the facility because the facility emits at least 10,000 metric tons of CO₂e of greenhouse gases per year. In the 2010 annual emission inventory submitted to the NWCAA and received on March 21, 2011, the facility reported that 8,582 metric tons of CO₂e were emitted. Similar to the federal reporting rule (40 CFR 98, see discussion in Section 3.1.10), WAC 173-441 requires annual GHG inventories with reports due no later than March 31 of the following year for facilities that are also subject to 40 CFR 98. Under WAC 173-441, annual emissions shall be reported to Ecology beginning in calendar year 2012. This regulation is implemented in its entirety by Ecology and is considered an applicable requirement under the Title V program; as such, it is included in Section 2 of the AOP for the facility.

SECTION 4 GENERAL PERMIT ASSUMPTIONS

4.1 Permit Content

The permit contains (1) standard terms; (2) generally applicable conditions for the type of facility permitted; and (3) specifically applicable conditions originating from PSD permits, approvals to construct, and any orders referencing the facility. Applicable requirements that were satisfied by a single past action on the part of the source are not included in the AOP but are discussed in the SOB. In addition, as discussed below, conditions that do not contain substantive requirements and have no ongoing compliance demonstrations are excluded from the AOP. Regulations that require action by a regulatory agency, but not of the regulated source, are not included as applicable permit conditions.

4.2 One Time Requirements

Applicable requirements that were satisfied by past actions on the part of the source are not included in the AOP but are described below. Note that one-time requirements related to the original turbines are not included because they were removed and replaced with new turbines in 2003.

- NWCAA OAC 311a Condition 4 required payment of plan and examination fees prior to startup of the 2.5 MMBtu/hr boiler/water heater. The plan and examination fees were paid on April 15, 1991.
- NWCAA OAC 657 Condition 7 and 40 CFR 60.8 required an initial performance test of the Solar Centaur 40 turbine. This test was conducted on September 22, 1998 and the test report is on file.
- NWCAA OAC 657 Condition 14 and 40 CFR 60.7a(1) and (3) required notification before initial construction, startup, and operation of the Solar Centaur 40 turbine. Letter submitted to NWCAA and EPA Region 10 on August 17, 1998.
- PSD 01-09 Condition 2.4 required an initial stack test of the 450kW emergency standby generator to document NO_x emissions from the unit. The test was conducted on December 29, 2003 and indicated compliance with the emission limit in Condition 2.3 of PSD 01-09. Note that this condition was not included in subsequent amendments to PSD 01-09, including PSD 01-09 Amendment 7.
- PSD 01-09 Condition 3.2 required an initial stack test of the Sellers C-80 heater/boiler to document NO_x emissions from the unit. The test was conducted on October 29, 2003 and indicated compliance with the emission limit in Condition 3.1 of PSD 01-09. Note that this condition was not included in subsequent amendments to PSD 01-09, including PSD 01-09 Amendment 7.
- PSD 01-09 Condition 8.1.1 and 40 CFR 60.7a(1) required notification before initial construction of the Solar Centaur 50 and Mars 90 turbines. Such notice was submitted to NWCAA and WDOE on October 23, 2002. Note that this condition was not included in subsequent amendments to PSD 01-09, including PSD 01-09 Amendment 7.
- PSD 01-09 Condition 8.1.2 and 40 CFR 60.7a(3) required notification before initial startup of the Solar Centaur 50 turbine. Such notice was submitted to NWCAA and WDOE on June 26, 2003. Note that this condition was not included in subsequent amendments to PSD 01-09, including PSD 01-09 Amendment 7.
- PSD 01-09 Condition 8.1.2 and 40 CFR 60.7a(3) required notification before initial startup of the Solar Mars 90 turbine. Such notice was submitted to NWCAA on May

29, 2003. Note that this condition was not included in subsequent amendments to PSD 01-09, including PSD 01-09 Amendment 7.

- NWCAA OAC 794d Condition 8, PSD 01-09 Condition 5.1.5.1 and 40 CFR 60.8 required an initial performance test of the Solar Mars 90 turbine. The initial performance test was October 27-30, 2003, and the test report is on file. Note that this condition was not included in subsequent revisions to OAC 794, including OAC 794f.
- NWCAA OAC 794d Condition 8, PSD 01-09 Condition 5.2.5.1 and 40 CFR 60.8 required an initial performance test of the Solar Centaur 50 turbine. The initial performance test was August 16-21, 2003 and the test report is on file. Note that this condition was not included in subsequent revisions to OAC 794, including OAC 794f.
- PSD 01-09 Conditions 8.1.3 and 8.1.4 included initial O&M requirements. NWP-MVCS has complied with both as evidenced by their quarterly reports and inspection of the O&M manual. Note that this condition was not included in subsequent revisions to OAC 794, including OAC 794f.

4.3 Federal Enforceability

Federally enforceable requirements are terms and conditions required under the Federal Clean Air Act or under any of its applicable requirements such as NESHAP. Local and state regulations may become federally enforceable by formal approval and incorporation into the State Implementation Plan (SIP) or through other delegation mechanisms. Federally enforceable requirements are enforceable by the EPA and citizens of the United States. All applicable requirements in the permit including Standard Terms and Conditions, Generally Applicable Requirements, and Specifically Applicable Requirements are federally enforceable unless identified in the permit as enforceable only by the state and labeled as “state only”.

Most rules and requirements are followed by a date in parentheses. Two different versions (identified by the date) of the same regulatory citation may apply to the source if federal approval/delegation lags behind changes made to the Washington Administrative Code (WAC) or the NWCAA Regulation. The date associated with a WAC regulation denotes the “State Effective Date” of the regulation. For SIP-approved WAC regulations (identified by the absence of the “state only” designation), the date represents the “State Effective Date” of the regulation version that was SIP-approved. For NWCAA regulations, the date represents the most recent Board of Directors adoption date, which is identified as the “Passed” or “Amended” date in the NWCAA Regulation. For SIP-approved NWCAA regulations (also identified by the absence of the “state only” designation), the parenthetical date represents the “Passed” or “Amended” date of the regulation version that was SIP-approved. The date associated with an OAC or PSD permit represents the latest revision date of that order. For a federal rule, the date is the rule’s most recent promulgation date.

Chapter 173-401 WAC is not federally enforceable although the requirements of this regulation are based on federal requirements for the air operating permit program. Upon issuance of the permit, the terms based on Chapter 173-401 WAC will become federally enforceable for the source.

4.4 Gap-Filling

Title V of the Federal Clean Air Act is the basis for 40 CFR Part 70, which is the basis for the State of Washington air operating permit regulation, Chapter 173-401 WAC. Title V requires that all air pollution regulations applicable to the source be called out in the air operating permit for that source. Title V also requires that each applicable regulation be accompanied

by a federally enforceable means of “reasonably assuring continuous compliance”. 40 CFR Part 70 and WAC 173-401-615 all contain a “gap-filling” provision to address situations where no monitoring is present. 40 CFR Part 70.6(c)(1) and WAC 173-401-630(1) contain authority to address situations where monitoring exists but is deemed to be insufficient. NWCAA relied upon these authorities to add monitoring where needed to the air operating permit (AOP).

The majority of cases where monitoring needed to be added were older regulations, permits and NWCAA tank requirements that contained no monitoring. For example, NWCAA used its gap-filling authority to add monitoring for the 20% visible emission standard, NWCAA 451.1. The term “Directly Enforceable” is included in each AOP term where NWCAA added gap-filling.

There were also some limited cases where monitoring did exist but was found to be insufficient. NWCAA used its sufficiency monitoring authority (WAC 173-401-630(1)) to add monitoring in those cases. “Directly Enforceable” is included in the AOP term when NWCAA used its authority to supplement insufficient monitoring.

The type and frequency of monitoring added under the authorities in WAC 173-401-615 and WAC 173-401-630(1) were set based on the following factors:

1. Historical Compliance of similar equipment – NWCAA reviewed this and other facilities past compliance with the underlying requirement for similar equipment. This information helped inform the decision about monitoring frequency and stringency.
2. Margin of Compliance – The margin of compliance is a measure of whether the facility can easily achieve compliance with a requirement, or whether they operate close to an exceedance. NWCAA considered the facility’s margin of compliance for each underlying requirement in setting monitoring for that requirement.
3. Variability of Process and Emissions – Processes that vary their production rates and/or emissions over time (e.g., batch loading of grain silos, VOC emissions from lumber drying kilns) require different monitoring from steady-state processes. NWCAA considered process and emission variability in setting monitoring.
4. Environmental Impact of a Problem – Exceedances of some permit requirements have greater environmental consequences than others. For example, a problem that causes an exceedance of a refinery sulfur plant limit could have a greater environmental impact than failing to use ultra-low sulfur diesel at an emergency generator. NWCAA considered the environmental impact of a problem in setting monitoring.
5. Clarity and Complexity – The requirements that apply to AOP facilities are numerous, varied, and can be complex. NWCAA’s goal is to write clear, concise permits the facilities can understand. To help achieve this goal, when possible, NWCAA aligned additional monitoring with monitoring that the facility is already performing. This approach required careful thought. NWCAA reviewed the monitoring the facility is already performing to see if it was adequate to stand-in as monitoring for the permit term, and only used it if deemed adequate. For example, an older storage tank may have a NWCAA construction permit that didn’t list monitoring. The same tank may also be subject to 40 CFR 60 Subpart Kb. Subpart Kb monitoring would only be used as the gap-filled (or sufficiency monitoring) if we found it was adequate to show compliance with the construction permit.

The following table lists where NWCAA used its gap-filling monitoring authority.

Table 4-1 AOP terms with Directly Enforceable gapfill provisions

AOP Term	Description	Monitoring
4.1	Required monitoring reports	Reporting periods identified
4.2, 5.4, 5.34	Operation and maintenance	Monitor, keep records and report
4.3-4.7, 5.30-5.31	Nuisance and Odor	Procedure followed when complaints are received
4.8-4.12	Fugitive PM	Procedure followed when complaints are received
4.13-4.15, 5.30	Visible emissions	Visible emissions monitoring; procedure followed when complaints are received
4.16 -4.18	PM	Procedure followed when complaints are received
4.19-4.23	Sulfur dioxide	Maintain records of type, quantity, and sulfur content of all fuel combusted
5.18, 5.22	NOx	Calculation and reporting of NOx emissions
5.29, 5.33	PM	Monitor, keep records and report

4.5 Future Requirements

Some requirements that are not applicable until triggered by an action, such as the requirement to file an application prior to constructing a new source, are addressed within the standard terms and conditions section of the permit. There are presently no pending applications to construct or modify NWP-SCS in such a way as to trigger New Source Review. NWP-MVCS has certified in the permit renewal application that the facility will meet any future applicable requirements on a timely basis.

4.6 Compliance Options

NWP-MVCS did not request emissions trading provisions or specify more than one operating scenario in the air operating permit application; therefore, the permit does not address these options as allowed under WAC 173-401-650. This permit does not condense overlapping applicable requirements (streamlining) nor does it provide any alternative emission limitations.

SECTION 5 PERMIT ELEMENTS AND BASIS FOR TERMS AND CONDITIONS

5.1 Permit Organization

The NWP-MVCS Air Operating Permit (AOP) is divided into the following sections:

- Permit Information
- Attest
- Table of Contents
- Section 1 Emissions Unit Identification
- Section 2 Standard Terms and Conditions
- Section 3 Standard Terms and Conditions for NSPS and NESHAP
- Section 4 Generally Applicable Requirements
- Section 5 Specifically Applicable Requirements
- Section 6 Inapplicable Requirements

5.2 Permit Information and Attest

5.2.1 Permit Information

The Permit Information page identifies the source and provides general information relevant to the permit such as the facility address, the responsible official, the permit issuance date and the permit expiration date, and the agency personnel responsible for permit preparation, review, and issuance.

5.2.2 Attest

The Attest page provides authorization for the source to operate under the terms and conditions contained in the permit.

5.3 AOP Section 1 Emission Unit Identification

The Emission Unit Identification section lists emission units, equipment ratings, and air pollution control devices/methods present at the NWP-MVCS facility. Additional information about the facility may be found in the operating permit application and in associated files.

5.4 AOP Section 2 Standard Terms and Conditions

The Standard Terms and Conditions section of the AOP specifies administrative requirements or prohibitions with no ongoing compliance monitoring requirements. The citations giving legal authority to the Standard Terms and Conditions are provided in the section. The description of the regulation in each of these conditions (with the exception of those labeled "Directly enforceable under WAC 173-401-615(1)(b) & (c), 10/17/02") may be paraphrasing of the actual regulatory requirement. Where there is a difference between the actual requirement and the paraphrased description, the cited regulatory requirement takes precedence. For clarity and readability, the terms and conditions have been grouped by function. Similar requirements from the State and the NWCAA regulations are grouped together where possible.

Several permit conditions in the Standard Terms and Conditions section are labeled “Directly enforceable under WAC 173-401-615(1)(b) & (c), 10/17/02”. These conditions are a clarification of the regulatory requirements, as the NWCAA interprets those requirements. “Directly enforceable” conditions are legal requirements with which the permittee must comply and are directly enforceable through the permit per NWCAA’s gap-filling authority.

There are several requirements included in this that are not applicable until triggered. An example of this would be the requirement to file an NOC application.

5.5 AOP Section 3 Standard Terms and Conditions for NSPS and NESHAP

Section 3 of the AOP includes the standard terms and conditions that are contained in Subpart A of 40 CFR 60 and Subpart A of 40 CFR 63. Such standard terms and conditions are administrative, notification, and/or other requirements that typically have no ongoing compliance monitoring requirements.

The NESHAP portion of Section 3 in the AOP is designed to summarize Subpart A to 40 CFR 63 (General Provisions). Table 10 of Subpart DDDDD to Part 63 of 40 CFR specifies which parts of the General Provisions apply to the boilers/hot water heaters at the facility.

5.6 AOP Sections 4 and 5: Generally and Specifically Applicable Requirements

Requirements that limit emissions and broadly apply to all sources within the jurisdiction of the NWCAA are identified in Section 4 - Generally Applicable Requirements. Requirements that limit emissions and apply to specific emission units at NWP-MVCS are identified in Section 5 - Specifically Applicable Requirements.

The tables in these sections are organized by pollutant type. The first column contains the term number followed by the pollutant type. The second column identifies the regulatory citation. The third column provides a brief description of the applicable requirements for informational purposes and is not itself enforceable. The fourth column identifies monitoring, recordkeeping and reporting (MR&R) requirements in accordance with WAC 173-401-605(1), -615(1) & (2). Test methods associated with an applicable requirement or in accordance with WAC 173-401-615(1)(a) are included in this column.

Many generally applicable requirements do not specify test and/or monitoring methods within the text of the regulation or statute. Since WAC 173-401-615 requires that the permit require monitoring and recordkeeping adequate to demonstrate compliance with requirements, legally enforceable site-specific monitoring methods were established (“gap-filled”) based on the characteristics of the facility, the nature of the underlying requirement, the requirements of WAC 173-401-615, and EPA guidance on monitoring.

5.7 AOP Section 6 Inapplicable Requirements

Washington Administrative Code 173-401-640(2) allows a determination regarding the applicability of requirements with which the source must comply. Section 6 of the permit lists requirements deemed inapplicable based on the applicability of the cited regulation. It is stated in the AOP that the permit shield applies to the specific, listed inapplicable requirements.

SECTION 6 INSIGNIFICANT EMISSION UNITS AND INAPPLICABLE REQUIREMENTS

Washington Administrative Code 173-401-640 allows a determination regarding the applicability of requirements with which the source must comply. Section 6 of the permit lists requirements deemed inapplicable based on the applicability of the cited regulation.

6.1 Insignificant Emission Units

Categorically exempt insignificant emissions units listed in WAC 173-401-532 are present at the Northwest Pipeline LLC, Sumas Compressor Station. These categorically exempt emissions units normally have extremely low emissions and are considered insignificant by regulation and not of sufficient importance to list in the permit. Other emission units or activities generate only fugitive emissions for which there are no specifically applicable requirements. These activities are categorized as insignificant by Chapter 173-401-530(1)(d) WAC. Categorically insignificant and fugitive emission units and activities are listed in the following table.

Table 6-1 Insignificant Activities/Emission Units

Unit/Activity	WAC Citation Category
Lubricating Oil Storage & Handling	WAC 173-401-532(3)(4)(69)
Glycol Storage and Handling	WAC 173-401-532(4)
Natural Gas Pipeline and Fuel System Emissions	WAC 173-401-530(1)(d)
Trucks, Fork Lifts, Autos	WAC 173-401-532(10)
Plant Upkeep/Painting	WAC 173-401-532(33)
Landscaping Activities	WAC 173-401-532(43)
Comfort Air Conditioning	WAC 173-401-532(46)
Natural Draft Hoods/Safety Valves	WAC 173-401-532(47)
Vents/Bathroom Facilities	WAC 173-401-532(48)
Office Activities	WAC 173-401-532(49)
Personal Care Activities	WAC 173-401-532(50)
Battery Banks	WAC 173-401-532(77)
Air Compressors	WAC 173-401-532(88)
Waste Oil Storage and Handling	WAC 173-401-532(4)
Roadway Emissions	WAC 173-401-530(1)(d)
Repair and Maintenance Activities	WAC 173-401-532(74)

6.2 **Inapplicable Requirements**

Chapter 173-401-640 WAC requires the permitting authority to issue a determination regarding the applicability of requirements with which the source must comply. Table 6-1 in the permit lists requirements deemed inapplicable to the emission units identified in Table 1 in the permit and provides the basis for each determination.

SECTION 7 PUBLIC DOCKET

A 30-day public comment period on NWP-MVCS’s draft air operating permit period ran from July 5, 2024 to August 9, 2024. Notice was posted in the Washington Department of Ecology’s Permit Register, as well as the NWCAA website. Copies of the draft permit and statement of basis were available on NWCAA’s website and at NWCAA’s office during the comment period. NWCAA received no comments on the AOP draft during the public comment period.

On August 16, 2024 NWCAA submitted the proposed AOP and SOB to EPA, Region 10. The 45-day EPA review period ended September 30, 2024; NWCAA received no comments from EPA during the review period. NWCAA issued the AOP and SOB as proposed on October 10, 2024.

The final AOP and SOB are available online at <http://www.nwcleanairwa.gov> and at the following location:

Northwest Clean Air Agency
1600 South Second Street
Mount Vernon, WA 98273-5202

SECTION 8 DEFINITIONS AND ACRONYMS

Definitions are assumed to be those found in the underlying regulation. A short list of definitions has been included to cover those not previously defined.

An "applicable requirement" is a provision, standard, or requirement in any of the listed regulations or statutes as it applies to an emission unit at a stationary source.

An "emission unit" is any part or activity of a stationary source that emits or has the potential to emit pollutants.

A "permit" means for the purposes of the air operating permit program an air operating permit issued pursuant to Title 5 of the 1990 Federal Clean Air Act.

"Technology-Based Emission Standard" means a standard, the stringency of which is based on determinations of what is technologically feasible considering relevant factors.

"State" means for the purposes of the air operating permit program the NWCAA or the Washington State Department of Ecology.

The following is a list of Acronyms used in the Air Operating Permit and/or Statement of Basis:

4SLB	four-stroke lean burn
4SRB	four-stroke rich burn
2SRB	two-stroke rich burn
AFS	Air Facility System
AOP	Air Operating Permit
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
CO	carbon monoxide
dscf	dry standard cubic foot
EPA	The United States Environmental Protection Agency
FCAA	Federal Clean Air Act
ICIS	Integrated Compliance Information System
ISO	International Standards Organization
MR&R	monitoring, recordkeeping and reporting
NOC	Notice of Construction
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
NWCAA	Northwest Clean Air Agency
NWP-SCS	Northwest Pipeline LLC Sumas Compressor Station
OAC	Order of Approval to Construct
PEMS	Parametric Emissions Monitoring System

PM	particulate matter
PM ₁₀	particulate matter less than 10 microns in diameter
ppmvd	parts per million by volume (dry basis)
RCW	Revised Code of Washington
RICE	Reciprocating internal combustion engines
SIP	State Implementation Plan
SI	Spark Ignition
STP	Standard temperature and pressure
SO ₂	sulfur dioxide
WAC	Washington Administrative Code