

# Statement of Basis for Air Operating Permit—Final

## Northwest Pipeline LLC Mount Vernon Compressor Station

Mount Vernon, Washington

June 5, 2014



*Serving Island, Skagit & Whatcom Counties*

**PERMIT INFORMATION**  
**NORTHWEST PIPELINE LLC, MOUNT VERNON COMPRESSOR STATION**  
**15498 Lange Road, Mount Vernon, WA 98273**

**SIC: 4922**

**NAICS: 486213-057-0044**

**NWCAA ID: 1440-V-S**

**EPA AFS: 53-057-00044**

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002R2M1	June 5, 2014
<b>Supersedes Permit Number:</b>	<b>Expiration Date:</b>
002R2	July 12, 2017
<b>Application Received Date:</b>	<b>Renewal Application Due:</b>
May 27, 2014	July 12, 2016

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## **1 INTRODUCTION**

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

### **1.1 Why an AOP is required**

The Northwest Pipeline LLC - Mount Vernon Compressor Station (also identified herein as the permittee, NWP-MVCS, or the facility) is required to have an Air Operating Permit because the facility has the potential to emit greater than 100 tons of carbon monoxide (CO) and nitrogen oxides (NO<sub>x</sub>), and greater than 10 tons per year of the hazardous air pollutant formaldehyde. Moreover, the facility has the potential to emit more than 100,000 tons of CO<sub>2</sub>e and more than 100 tons of greenhouse gases on a mass basis per year. These air pollutants are defined as regulated air pollutants in the Washington Administrative Code (WAC) 173-401. These and other emissions are produced by the combustion of natural gas in the fuel-burning units at the facility.

The purpose of this Statement of Basis is to set forth the legal and factual basis for the conditions in the NWP-MVCS Air Operating Permit and to provide background information for permit review by interested parties. In accordance with WAC 173-401-700(8), this Statement of Basis is not a legally enforceable document.

### **1.2 Brief Permit History**

#### **1.2.1 Original AOP**

The Northwest Clean Air Agency (NWCAA) issued the original Air Operating Permit for NWP-MVCS on December 3, 1998. The permit was modified in May 2000 to change a monitoring parameter in Section 5 and again in August 2001 for a minor administrative change. The permit expired on December 3, 2003.

#### **1.2.2 Modification 1**

Northwest Pipeline GP submitted an application for an administrative modification to their Title V AOP for the Mount Vernon, Washington facility to the Northwest Clean Air Agency (NWCAA) received on March 17, 2009. The name Northwest Pipeline Corporation was replaced with Northwest Pipeline GP throughout, and The Responsible Corporate Official was changed from Larry Hjalmarson to Barry Orgill in accordance with WAC 173-401-720. The format of the AOP was updated to Agency standard.

### **1.2.3 AOP #002R2 Renewal**

Air operating permits must be renewed every five years under WAC 173-401-610 and -710. The following changes were made to the air operating permit during renewal:

#### **1.2.3.1 PSD-01-09 Amendment**

Northwest Pipeline submitted a request to the Washington Department of Ecology for a sixth amendment to PSD-01-09. The reason for the sixth amendment to their PSD permit was to clarify and simplify NO<sub>x</sub> monitoring procedures used by portable NO<sub>x</sub> monitors in preparation for renewal of the facility's Title V permit. Testing using a portable analyzer to monitor the volume percent of NO<sub>x</sub> every 336 hours has proven adequate to indicate compliance, so the additional calculation of NO<sub>x</sub> mass flow during these periodic tests is no longer required. If non-compliance is indicated by a portable monitor test, the turbine will now be shut down as soon as reasonably possible and repaired rather than have further emissions testing. No compliance testing conditions for NO<sub>x</sub> (reference Method 20) were affected by these changes, but the NO<sub>x</sub> limit averaging time is reduced from a three to one hour time period, which is more stringent. No physical changes were requested, so Ecology made the change as an Administrative Amendment. The changes to PSD-01-09 necessitated corresponding changes in OAC 794d. Northwest Pipeline submitted a request for the necessary changes on March 9, 2012. OAC 794e was issued on March 26, 2012, superseding all previous version of OAC 794.

#### **1.2.3.2 General Information and Attest**

Dates were incremented generally by five years, except that the renewal application is now due one year, rather than six months, before permit expiration.

#### **1.2.3.3 Section 2 Standard Terms and Conditions**

AOP Section 2 (Standard Terms and Conditions) has been replaced with the latest NWCAA standard version of applicable requirements, containing any new or modified regulations and updated reference dates. Notably, the applicable requirements from WAC 173-441 and WAC 173-401 pertaining to regulation of greenhouse gas (GHG) emissions have been included as AOP Terms 2.4.5 and 2.9. In addition, the latest version of WAC 173-400 has been incorporated in Section 2 of the AOP.

#### **1.2.3.4 Section 3 Standard Terms and Conditions for NSPS and NESHAP**

AOP Section 3 (Standard Terms and Conditions for NSPS and NESHAP) has been replaced with the latest versions of applicable requirements, containing any new or modified regulations and updated reference dates. The NESHAP Standard Terms and Conditions is new to Section 3. It has been added as a result of the applicability of 40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters to two boilers at the facility.

#### **1.2.3.5 Section 4 Generally Applicable Requirements**

Changes made to the Generally Applicable Requirements sections in AOP #002R2 are summarized in the following list:

- NWCAA 410, which states that it is unlawful to emit sulfur oxides such that ambient standards are exceeded outside plant boundaries, was removed from Section 4. This reflects current NWCAA practice, and is based on the difficulty of enforcing such a condition.
- Conditions from Order of Approval to Construct (OAC) 794e, issued on March 26, 2012, replaced conditions from OAC 794d.
- Changes to parts of WAC 173-400 that are referenced in Section 4 of the AOP.

#### **1.2.3.6 Section 5 Specifically Applicable Requirements**

The following changes in Section 5 of the Northwest Pipeline GP AOP #007R2 were made:

- Conditions from Order of Approval to Construct (OAC) 794e, issued on March 26, 2012, replaced conditions from OAC 794d.
- Conditions from PSD 01-09 Amendment 6, issued on February 22, 2012, replaced conditions from PSD 01-09 Amendment 5.
- A placeholder for the applicable conditions for two boilers that are subject to the provisions of 40 CFR 63 Subpart DDDDD. More discussion about this is found in Section 3.2.

#### **1.2.4 AOP #002R2M1 Administrative Amendment**

- Received notification of company name change, from Northwest Pipeline GP to Northwest Pipeline LLC. This name change is effective as of August 13, 2013, according to the letter from C. Vickery. Made changes to name in AOP/SOB and added "M1" to AOP number.

## 2 FACILITY DESCRIPTION

### 2.1 Facility History

The Northwest Pipeline LLC - Mount Vernon Compressor Station was constructed in 1966, and initially consisted primarily of one Clark TCV-12 four thousand horsepower reciprocating engine driving a reciprocating compressor. A second, identical engine/compressor set was added to the station in 1968. A 5.25 MMBtu/hour natural gas boiler to provide building heat and pre-heated water for compressor engines was permitted in 1991. A 270-kilowatt standby emergency generator and a 2.5 MMBtu/hr natural gas boiler were permitted in 1992. In 1993, the facility added one Solar Centaur T-4500 gas turbine and compressor set. Installation was completed June 22, 1993. A Solar SoLoNO<sub>x</sub> dry low-NO<sub>x</sub> combustor was installed on the Solar Centaur T-4500 gas turbine and placed in operation on October 21, 1994. A second mobile Solar Centaur gas turbine, model 40-T4700S, was permitted to be located at the site in May 1998.

In early 2003 the facility underwent significant modifications to increase capacity. A larger Solar Mars 90 gas turbine/compressor set was added and the existing Solar Centaur T-4500 turbine was replaced with a larger Solar Centaur 50 turbine. The existing 270-kilowatt standby emergency generator and 2.5 MMBtu/hr natural gas boiler were replaced with larger units.

A map showing the facility, as well as a plot plan, are included in Appendix A of this document.

### 2.2 Emission Units and Control

Primary emission sources at the facility are listed in Table 2-1 and include the two Clark TCV -12 natural gas fired reciprocating engines (Unit 1 and 2), the Solar Centaur 50 turbine (Unit 3) and the Solar Mars 90 turbine (Unit 4). Though the mobile Solar Centaur 40-T4700S turbine is permitted to operate at the site on an as-needed basis, it is very rarely on site and is typically not a significant source of emissions from the facility. Minor emission sources include auxiliary equipment - the Sellers C80 heater/boiler, the C125-W heater/boiler and the 450kW standby generator. In addition, fugitive emissions originate from the gas pipeline and the fuel system servicing the turbines and reciprocating engines. All combustion sources at the facility are fueled with natural gas from the pipeline.

**Table 2-1 Emission Unit Identification**

Unit	Source and Description	Control Equipment	Fuel Type	Power (MMBTU/hr)	Installation Date
1	Clark TCV-12 4000 hp Reciprocating Engine	None	Natural Gas	32.50	1966
2	Clark TCV-12 4000 hp Reciprocating Engine	None	Natural Gas	32.50	1966

Unit	Source and Description	Control Equipment	Fuel Type	Power (MMBTU/hr)	Installation Date
3	Solar Centaur T-6100S (50S) Gas Turbine	Dry low-NO <sub>x</sub> control (SoLoNO <sub>x</sub> )	Natural Gas	54.93	2003
4	Solar Mars T13002S (90S) Gas Turbine	Dry low-NO <sub>x</sub> control (SoLoNO <sub>x</sub> )	Natural Gas	113.22	2003
5	Solar Centaur 40-T4700S	Dry low-NO <sub>x</sub> control (SoLoNO <sub>x</sub> )	Natural Gas	39.78	1998
6	C125-W 5.25 MMBtu/hr Boiler / Water Heater	None	Natural Gas	5.2	1991
7	3.3 MMBth/hr Sellers C-80 Boiler / Water Heater	Non-selective catalytic reduction	Natural Gas	4.2	2003
8	450 kW electrical generator	None	Natural Gas	1.6	2003

### 2.3 Emissions Inventory

The reciprocating compressors are not equipped with air pollution control equipment. NO<sub>x</sub> emissions from the gas turbines are reduced by incorporation of SoLoNO<sub>x</sub> technology into the units. SoLoNO<sub>x</sub> equipped turbines use proprietary lean-premixed combustion technology to ensure a uniform air/fuel mixture and to reduce the formation of pollutants, including NO<sub>x</sub>. The gas turbine systems do not have water injection or other pollution control equipment.

**Table 2-2 NWP-MVCS Criteria Air Pollutants and CO<sub>2</sub> Summary, ton/yr**

	2005	2006	2007	2008	2009	2010
10 <sup>6</sup> ft <sup>3</sup> nat. gas	682	154	164	49	26	55
Total PM	2	0	1	0	0	0
PM <sub>10</sub>	2	0	1	0	0	0
PM <sub>2.5</sub>	0	0	1	0	0	0
SO <sub>2</sub>	1	0	1	0	0	0
NO <sub>x</sub>	60	31	83	6	2	4
VOC	3	2	4	0	0	0
CO	32	10	40	3	1	4
CO <sub>2</sub>					2849	3315
CH <sub>4</sub>					3	3

**Table 2-3 NWP-MVCS Toxic Air Pollutants Summary, lb/yr**

	2005	2006	2007	2008	2009	2010
Acetaldehyde	47	21	53	4	1	0
Acrolein	31	14	35	3	1	0
Benzene	115	51	130	10	4	0
Formaldehyde	4,657	1,248	2,064	329	138	280
Toluene	28	13	32	2	1	0

## 2.4 Monitoring 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.

Beginning 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. 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 (PEMS<sup>1</sup>) 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<sub>x</sub> 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

<sup>1</sup> Note that the acronym “PEMS” was used for both the predictive emissions monitoring system and later parametric emissions monitoring system.

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 NOx 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 requires monitoring not less frequently than once 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 has shown 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.

Data on the initial source tests for the Solar turbines are shown in Appendix A and indicate initial compliance with permit limits.

**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 <sub>x</sub> )	Method 20	Annual

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

## 2.5 Compliance History

The Northwest Pipeline LLC, Mount Vernon Compressor Station was initially registered by the NWCAA on May 31, 1990. There have been no notices of violations issued. Two odor complaints were received by the NWCAA against the Station on November 11, 1993. The complaints were investigated by NWCAA inspectors. The inspector's report states that the facility vented a quantity of natural gas, in what the report says is a "rare procedure". No complaints regarding the compressor station have been received by the NWCAA since that time.

On September 12, 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 was not set up to display the ongoing emissions of NO<sub>x</sub> in the same units as required by relevant sections of the PSD and NWCAA permits. In addition, carbon monoxide 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. Since that time, the PEMS system has been abandoned and replaced with periodic monitoring.

On October 8, 2007 NWP failed to demonstrate compliance with an allowable emission standard during a scheduled EPA reference method test. The reference method test of Unit #4 at the Mount Vernon compressor station was aborted when it became clear that the unit would not be in compliance with the 50 ppm limit on emissions of carbon monoxide. A penalty of \$6,500 was levied on 2.25.2008 and paid by the facility on 5.21.2008.

## **2.6 Permitting History**

### **2.6.1 Prevention of Significant Deterioration**

PSD permit 93-01 from the WDOE was issued July 14, 1993. This permit allowed the 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<sub>x</sub> averaging period from a rolling 24-hour average to an hourly average, and stack tests of the existing reciprocating compressor engines.

The turbine permitted under PSD permit 93-01 Amendment 1 was removed from the facility and replaced with turbines that are permitted under PSD permit 01-09. It is the policy of WDOE, however, that old PSD permits are not superseded by newer PSD permits and that all of the requirements of PSD Permit 93-01 Amendment 1 are still applicable and in effect. In anticipation of the difficulties associated with enforcing requirements on nonexistent equipment, those requirements of PSD Permit 93-01 Amendment 1 that apply to nonexistent equipment are not included in this Air Operating Permit. Those requirements of Permit 93-01 that applied to the whole facility or equipment still in place will be referenced.

PSD Permit 01-09 was approved 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<sub>x</sub> (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-T4500 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 existing Centaur 40-T4500 upgraded to 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<sub>x</sub> tests for the turbines easier to find in the permit and at NWP-MVCS's request changed the portable NO<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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 reason for the sixth administrative amendment is to clarify and simplify NO<sub>x</sub> monitoring procedures used by portable NO<sub>x</sub> monitors in preparation for renewal of the facility's Title V permit. Testing using a portable analyzer to monitor the volume percent of NO<sub>x</sub> every 336 hours has proven adequate to indicate compliance, so the additional calculation of NO<sub>x</sub> mass flow during these periodic tests is no longer required. If non-compliance is indicated by a portable monitor test, the turbine will now be shut down as soon as reasonably possible and repaired rather than have further emissions testing. No compliance testing conditions for NO<sub>x</sub> (reference Method 20) are affected by these changes, but the NO<sub>x</sub> limit's averaging time is reduced from a three to one hour time period, which is more stringent. No physical changes are requested.

Since these conditions apply specifically to equipment at the facility, they are contained in Section 5 of the AOP.

## **2.6.2 Northwest Clean Air Agency Orders of Approval to Construct**

The Northwest Pipeline LLC has received Orders of Approval to Construct (OAC) from the NWCAA for specific equipment. Applicable requirements, reference test methods, and monitoring for continuing OAC requirements are addressed in Sections 3 and 4 of the permit.

### **2.6.2.1 NWCAA Order of Approval to Construct No. 311**

Issue Date: February 6, 1991; revised March 28, 1991

Permitted Equipment: Sellers C-125-W water heater/boiler

NWCAA Order of Approval to Construct No. 320

Issue Date: July 15, 1992; revised April 2, 1993, May 8, 1995, and July 22, 1997

Permitted Equipment: Solar Centaur T4500 gas-fired turbine

\*\* Superseded by OAC 794 \*\*

### **2.6.2.2 NWCAA Order of Approval to Construct No. 402**

Issue Date: October 21, 1992

Permitted Equipment: Sellers C-60 2.5 MMBtu/hr water heater/boiler  
250 kW standby emergency generator

\*\* Superseded by OAC 794 \*\*

### **2.6.2.3 NWCAA Order of Approval to Construct No. 657**

Issue Date: May 12, 1998

Permitted Equipment: Solar Centaur 40-T4700S gas-fired turbine (occasional use in case of reciprocating engine failure. This unit is typically not stored on-site, but is brought in when needed).

#### **2.6.2.4 NWCAA Order of Approval to Construct No. 794**

Issue Date: August 12, 2002; revised March 4, 2003, August 9, 2004, January 11, 2005, and August 30, 2006

Permitted Equipment: Solar Mars 90-TI3002S (Mars 90S) gas turbine  
Solar Centaur 50-T6100S (Centaur 50S) gas turbine  
450 kW standby emergency generator  
Sellers C-80 water heater/boiler

Order of Approval to Construct (OAC) 794a was issued by the Northwest Clean Air Agency on March 4, 2003. OAC 794a superseded previously issued Orders (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), reporting requirements, and requirements for initial source tests and subsequent ongoing testing for the turbines according to the schedule shown on the following page. In addition, OAC 794a included a requirement that NWP-MVCS perform boroscope analysis on the two turbines on a regularly scheduled basis and also visually inspect the fuel injectors at prescribed intervals.

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

OAC 794c was issued on January 11, 2005 to identify a source change (Sellers C-80 boiler/heater) and to change the monitoring requirements for this source.

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

OAC 794e was issued on March 26, 2012. The purpose of this revision was to modify CO testing requirements to be consistent with NO<sub>x</sub> testing requirements in PSD-01-09 Amendment 6 and to remove the VOC limit because initial testing has been completed.

Data on the initial source tests for the Solar Centaur 50 and the Solar Mars 90 turbines are shown in Appendix A and indicate initial compliance with permit limits.

### **3 BASIS OF REGULATION APPLICABILITY**

#### **3.1 New Source Performance Standards (NSPS)**

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 New Source Performance Standard Subpart GG - Standards of Performance for Stationary Gas Turbines, codified in Title 40 Code of Federal Regulations (CFR). Subpart GG provides standards for nitrogen oxides in Section 60.332 and sulfur dioxide in Section 60.333, requirements for monitoring in Section 60.334, and test methods and procedures in Section 60.335. Compliance assurance with the continuously applicable parts of each of these subparts is described in Section 5 – Specifically Applicable Requirements of the permit.

Since Subpart GG applies, then 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 permit.

#### **3.2 National Emission Standards for Hazardous Air Pollutants (NESHAP)**

40 CFR Part 63 Subpart DDDDD, often referred to as the Boiler MACT, is intended to regulate industrial, commercial, or institutional boilers or process heaters that are located at a major source of hazardous air pollutants. The permittee operates two boilers/water heaters that are subject to the Boiler MACT.

EPA issued a final version of the rule on March 21, 2011, but at the same time issued a stay of the rule because they intended to reconsider certain aspects of the rule. On January 9, 2012, the US District Court of D.C. vacated EPA's stay of the rule. Lifting of the stay means that the rule, as published on March 21, 2011, is in effect. EPA has indicated that they intend to amend the rule by April 2012, and prior to the compliance date in 2014 for existing sources.

In view of these developments, NWCAA decided to include a "placeholder" in the AOP for the Boiler MACT's provisions that apply to the facility's two small boilers. This "placeholder" will be replaced with the actual applicable provisions once EPA has finalized the rule.

Since Subpart DDDDD applies, then the general provisions of the NESHAP (40 CFR 63 Subpart A) also apply. The applicable provisions of 40 CFR 63 Subpart A are included in Section 3 of the permit.

##### **3.2.1 40 CFR 63 Subpart ZZZZ applicability**

40 CFR 63 Subpart ZZZZ applies to stationary reciprocating internal combustion engines (RICE) at major or area sources of HAP emissions.

The NWP Mount Vernon Compressor Station is a major source of HAPs and operates the following RICE:

- Unit 1- 4,000 HP 2SLB Clark TCV-12 installed in 1966
- Unit 2 - 4,000 HP 2SLB Clark TCV-12 installed in 1968

- 545 HP 4SRB Caterpillar emergency backup installed in 2003

Units 1 & 2 are each 4,000 HP 2SLB Clark TCV-12 and 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). Units 1 & 2 do not have to meet the requirements of 40 CFR 63 Subpart ZZZZ and of Subpart A, or initial notification requirements as per §63.6590 (b)(3)(i)<sup>2</sup>.

The C Plant - 545 HP 4SRB Caterpillar emergency backup RICE is considered to be existing stationary RICE because the 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). The 4SRB Caterpillar emergency backup RICE does not have to meet the requirements of 40 CFR 63 Subpart ZZZZ and of Subpart A, or initial notification requirements as per §63.6590 (b)(3)(iii)<sup>3</sup>.

### **3.3 Compliance Assurance Monitoring (CAM)**

The requirements of Compliance Assurance Monitoring are contained in 40 CFR 64. They apply to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit provided the unit satisfies all criteria as delineated in 40 CFR 64.2(a)(1)-(3). In particular, 40 CFR 64.2(a)(2) stipulates that the emission unit uses a control device to achieve compliance. NWP-LLC does not use any control devices, as these are defined in 40 CFR 64.1, to achieve compliance. Therefore, NWP-LLC is not subject to the CAM rule.

### **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 extremely hazardous toxic and flammable 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.

NWP-LLC 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 98.

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<sup>2</sup> §63.6590 (b)(3)(i): The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements: (i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

<sup>3</sup> §63.6590 (b)(3)(iii): The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements: (iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

### **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. A source may have to acquire one or more of these permits:

- Prevention of Significant Deterioration (PSD) permits, which are required for new major sources or a major source making a major modification in an attainment<sup>4</sup> 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.

#### **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. The EPA issues the permit in some cases. 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).

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<sup>4</sup> 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)).

### **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. Also, the owner or operator must demonstrate that the project will not cause significant deterioration in nearby Class I Areas (parks and wilderness areas).

NWP-LLC is subject to the PSD program, and WDOE has issued two PSD for the facility. These PSD permits have been described in Section 2.6.1 **Error! Reference source not found.**

### **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.

## **3.6 Greenhouse Gases (GHG) Regulations**

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

The requirements for the mandatory greenhouse gas reporting are contained in 40 CFR 98. This regulation is implemented in its entirety by the EPA. This regulation is excluded from appearing in a Title V air operating permit because it does not contain applicable requirements under the Title V program (WAC 173-401-200(4)).

The following discussion is included here for completeness. 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e or more per year in combined emissions from all stationary fuel combustion sources.

Subpart C of 40 CFR 98 establishes reporting requirements for stationary fuel combustion sources and specifically excludes portable equipment, emergency generators and emergency equipment. The rule requires monitoring, recordkeeping, and reporting for facilities where the aggregate maximum rated heat input capacity of the stationary fuel combustion units at the facility is 30

MMBtu/hr or greater, and the facility emits 25,000 metric tons of CO<sub>2</sub>e or more per year in combined emissions from all stationary fuel combustion sources.

On November 8, 2010, EPA signed a rule that finalized greenhouse gas (GHG) reporting requirements for the petroleum and natural gas industry under 40 CFR Part 98 Subpart W. Facilities must report GHG emissions if they meet the definition of one of the identified industry segments and emit 25,000 metric tons of CO<sub>2</sub>e or more per year in combined GHG emissions. Onshore Natural Gas Transmission Compression is a Subpart W industry segment defined as any stationary combination of compressors that move natural gas at elevated pressure from production fields or natural gas processing facilities in transmission pipelines to natural gas distribution pipelines or into storage.

A GHG air emission inventory was performed by the facility, and was included as part of the AOP renewal application submitted to the NWCAA. Stationary fuel combustion units were estimated to have an aggregate maximum rated heat input capacity of about 90 MMBtu/hr and were estimated to potentially emit 117,660 metric tons of CO<sub>2</sub>e. This estimate was based on operating 8,760 hours per year for each piece of equipment.

The facility meets the definition of the transmission compression industry segment and is subject to Subpart W if actual emissions from Subpart C sources and Subpart W sources exceed 25,000 metric tons of CO<sub>2</sub>e. For this reason, actual fuel combustion estimates and associated emissions need to be performed.

### **3.6.2 WAC 173-441, Washington State Reporting of Emissions of GHG**

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 CO<sub>2</sub>-equivalents (CO<sub>2</sub>e) 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 CO<sub>2</sub>e 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 CO<sub>2</sub>e were emitted. Similar to the federal reporting rule (40 CFR 98, see discussion in Section 3.6.1), 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.

## 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 permit but are discussed in the Statement of Basis. An example would include performance testing to demonstrate compliance with applicable emission limitations as a requirement of initial startup. 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

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 NOx 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.

PSD 01-09 Condition 3.2 required an initial stack test of the Sellers C-80 heater/boiler to document NOx 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.

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.

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.

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.

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.

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.

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.

### **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”.

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.

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.

### **4.4 Future Requirements**

There are no pending applicable requirements that apply to the Northwest Pipeline LLC, Mount Vernon Compressor Station. 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 Section 3 of the permit. There is

presently no pending application to construct a new source at the compressor station. Northwest Pipeline LLC officials have certified in their permit application that the facility will meet any future applicable requirements on a timely basis.

#### **4.5 Compliance Options**

The Northwest Pipeline LLC did not request emissions trading provisions or specify more than one operating scenario in the operating permit application, so the permit does not address these options. This operating permit does not condense overlapping applicable requirements (streamlining) nor does it provide any alternative emission limitations.

## **5 PERMIT ELEMENTS AND BASIS FOR TERMS AND CONDITIONS**

### **5.1 Permit Elements**

The Northwest Pipeline LLC - Mount Vernon Compressor Station permit is divided into the following sections:

Permit Information Page

Attest

Table of Contents

Section 1- Emissions Unit Identification

Section 2 - Standard Terms and Conditions

Section 3 – Standard Terms and Conditions for New Source Performance Standards

Section 4 - Generally Applicable Requirements

Section 5 – Specifically Applicable Requirements

Section 6 - Inapplicable Requirements

### **5.2 Permit Information**

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

### **5.3 Attest**

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

### **5.4 Section 1 Emission Unit Identification**

The Emission Unit Identification section lists emission units, rated capacities, installation date, and air pollution control methods at the NWP facility.

### **5.5 Section 2 Standard Terms and Conditions**

The Standard Terms and Conditions section of the AOP (Section 2) specifies administrative requirements or prohibitions with no ongoing compliance monitoring requirements. The legal authority for the Standard Terms and Conditions is provided in the citations in Section 2 of the AOP. 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") is sometimes a paraphrase of the actual regulatory requirement. Where there is a difference between the actual requirement and the paraphrased description, the cited regulatory requirement takes precedence. In an effort to make the section more readable, the terms and conditions have been grouped by function. In some cases,

similar requirements at the state and local authority level have been grouped together.

Several permit conditions in Section 2 of the AOP 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.

A number of requirements that would not be applicable until triggered have also been included in Section 2 of the AOP. An example of one such requirement is the requirement for a source to submit an application for new source review.

### **5.6 Section 3 Standard Terms and Conditions**

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 facility.

### **5.7 Section 4 Generally Applicable Requirements**

The Generally Applicable Requirements section of the permit identifies requirements that apply broadly to the facility. With some exceptions, each of these requirements applies non-specifically to sources. For example, NWCAA Regulation Section 455.1 broadly prohibits particulate emissions that exceed 0.1 gr/dscf from any emissions unit. However, some requirements apply to only certain types of emissions units. For example, NWCAA Regulation Section 455.11 applies only to combustion equipment and WAC 173-400-060 applies only to general process units. Despite these differences in applicability, these requirements have been listed together in the Generally Applicable Requirements section of the permit.

The Generally Applicable Requirements are organized in Table 4 in the permit. The first column of Table 4 provides permit term numbers used to identify listed elements. The requirements specified in the second column are applicable plant-wide to all emission units at the source including insignificant emission units. The third column describes the applicable requirements for informational purposes only, and is not enforceable. The fourth column identifies monitoring the permittee must perform to assure compliance with the applicable requirement as required by WAC 173-401-605(1) and 615(1) and (2). The fourth column is enforceable except that insignificant emission units are exempt from all monitoring, recordkeeping and reporting requirements.

Chapter 173-401 WAC requires the permit to include both a reference test method and a monitoring method. The Monitoring Recordkeeping and Reporting (MR&R) requirements in the fourth column indicate official methods that the NWCAA, the EPA, or the WDOE may use to determine compliance with applicable requirements.

Where the applicable requirement fails to specifically state a test method, a method is added to the permit, as required by WAC 173-401-615(1)(a). The facility has no immediate obligation to perform these tests. If the NWCAA determines via the stated reference test method or other methods that the facility is not complying with the associated applicable requirement, then a violation of the applicable requirement has occurred.

## **5.8 Specifically Applicable Requirements**

This section lists applicable requirements that apply uniquely to a process unit or to a specific category of process unit. Typically, these requirements originate from an Order of Approval to Construct issued by NWCAA or from a State issued PSD permit. Gap filling was necessary in some cases to fulfill the requirements of Chapter 173-401-615 WAC. In these cases, an equipment-specific monitoring method was developed based on the characteristics of the permitted facility, the emissions unit, the nature of the underlying requirement, the requirements of Chapter 173-401-615 WAC, and EPA guidance.

## **5.9 Gap Filling**

Some regulations or statutes do not specify compliance determination or monitoring methods. Chapter 173-401-615 WAC requires the permit to feature monitoring, recordkeeping and reporting adequate to demonstrate compliance with applicable requirements. In these cases, a site specific compliance monitoring method was developed based on the characteristics of the permitted facility, the nature of the underlying requirement, the requirements of Chapter 173-401-615 WAC, and EPA guidance. The process of developing and implementing these requirements is called "gap filling". The following describes the derivation of site specific compliance monitoring in the Northwest Pipeline LLC, Mount Vernon Compressor Station operating permit.

Compliance with generally applicable opacity and particulate emission requirements is assured via periodic certification that only pipeline-quality natural gas is combusted and the units are properly operated and maintained, as evidenced by monitoring surrogate parameters. The permittee is also required to investigate and log actions taken in response to opacity complaints. This approach is taken because proper operation of the facility, including combustion of pipeline-quality natural gas, presently results in zero opacity from combustion units under full load conditions.

As an example of gap-filling, consider permit term 4.1 that references WAC 173-401-615(3) (10/17/02). The WAC rule states that submittal of reports must be at least once every six months. In order to make the requirement less ambiguous permit term 4.1 was gap-filled to require reports to cover regular intervals and be submitted over specified date windows.

As another example of gap-filling, consider permit terms 4.3-4.12. These permit terms have to do with general nuisance, odor, and fugitive dust emissions, referencing applicable sections of WAC 173-400 and the NWCAA Regulation. For example, WAC 173-400-040(4), which describes fugitive dust emissions, states that the source "shall take reasonable precautions to prevent the release of air contaminants from the operation." Therefore, in order to streamline MR&R

requirements, where they exist, and introduce MR&R requirements, where they were absent altogether, gap-filling was employed. In this case, a written air contaminant complaint response plan must be developed and maintained at the site, and a procedure for dealing with complaints is outlined.

### **5.10 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.

## 6 INSIGNIFICANT EMISSION UNITS AND INAPPLICABLE REQUIREMENTS

### 6.1 Insignificant Emission Units

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.

Categorically exempt insignificant emissions units listed in WAC 173-401-532 are present at the Northwest Pipeline LLC, Mount Vernon 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 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.

## 7 PUBLIC DOCKET AND DEFINITIONS

### 7.1 Public Docket

Copies of this permit as well as the permit application and any technical support documents are available online at [www.nwcleanair.org](http://www.nwcleanair.org) and at the following location:

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

### 7.2 Definitions and Acronyms

"Acid Rain Program" means the program aimed at the reduction of SO<sub>2</sub> and NO<sub>x</sub> emissions, thereby reducing the deposition of acid rain.

An "area source" means any stationary source of hazardous air pollutants that is not a major source.

"Attainment area" means a geographic area designated by EPA as having attained the National Ambient Air Quality Standard for a given criteria pollutant.

"BACT" (Best Available Control Technology) is an emissions limitation which is based on the maximum degree of control that can be achieved. It is a case-by-case decision that considers energy, environmental, and economic impact. BACT can be add-on control equipment or modification of the production processes or methods.

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

"Fugitive dust" means a particulate emission made airborne by forces of wind, man's activity, or both. Unpaved roads, construction sites, and tilled land are examples of areas that originate fugitive dust.

"Fugitive emissions" means emissions that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

"General permit" means a permit which covers multiple similar sources or emissions units in lieu of individual permits being issued to each source.

"GHG (Greenhouse gases)" are gases that trap infrared heat in the atmosphere. According to EPA definition, GHG means carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and other fluorinated greenhouse gases as defined in 40 CFR 98.

"HAP (Hazardous Air Pollutants)" are substances that are named as hazardous by the Clean Air Act. These substances, such as benzene, formaldehyde, or chromium-6, present tangible, serious hazards to humans.

"MACT (Maximum Achievable Control Technology)" is control technology requirement for major sources of HAP.

A “major source” means any stationary source that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, or 100 tons per year of any other regulated pollutant.

“NAAQS (National Ambient Air Quality Standards)” are ambient concentration standards set by EPA for pollutants considered harmful to public health and the environment. Currently there are NAAQS for six so-called “criteria pollutants”: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), ground-level ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and sulfur dioxide (SO<sub>2</sub>).

An “NOV (Notice of Violation)” is issued by an environmental regulatory agency to initiate enforcement action.

The “New Source Review (NSR)” is a pre-construction permitting program. It ensures that air quality is not significantly degraded from the addition of new or modified facilities, but also ensures that any large new or modified industrial sources will be as clean as possible. NSR permits are legal documents that the facility owners/operators must abide by. The permit specifies what construction is allowed, what emission limits must be met, and often how the emissions source must be operated.

“Opacity” means the degree to which an object seen through a plume is obscured, stated as a percentage. 100% opacity means nothing is seen through the plume, and 0% opacity means everything is visible (no plume at all).

“PTE (Potential to emit)” means the maximum capacity of a source to emit a pollutant under its physical and operational design. It usually means the emissions from a round-the-clock operation (24 hrs/day x 365 days = 8760 hours in a year). Any physical or operational limitation on the capacity of the source to emit a pollutant is treated as part of its design only if the limitation or the effect it would have on emissions is enforceable.

“PSD (Prevention of Significant Deterioration)” is an EPA program in which state and/or federal permits are required in order to restrict emissions from new or modified sources in places where air quality already meets or is better than NAAQS.

“(RACT) Reasonably available control technology” means the lowest emission limit that a particular source or source category is capable of meeting by the application of control technology. This technology must be reasonably available considering technological and economic feasibility. RACT is determined on a case-by-case basis, taking into account the impact of the source upon air quality, the availability of additional controls, the emission reduction to be achieved by additional controls, the impact of additional controls on air quality, and the capital and operating costs of the additional controls. RACT requirements for any source or source category are adopted only after notice and opportunity for comment are afforded.

“Synthetic Minor permits” impose federally enforceable limits to restrict a facility's potential emissions to below major source thresholds. This option makes it possible for those facilities that can comply with the Synthetic Minor permit's federally enforceable limits to operate without the need for a Title V permit.

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

AIRS	Aerometric Information Retrieval System
AMP	Alternative Monitoring Plan
AOP	Air Operating Permit
ASIL	Acceptable Source Impact Level
ASTM	American Society for Testing and Materials
BACT	Best available control technology
BFO	Ecology Bellingham Field Office
BTU	British Thermal Unit
CAAA	Clean Air Act Amendments
CAM	Compliance Assurance Monitoring
CD	Consent Decree
CEM	Continuous Emissions Monitor
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon dioxide
CO	Carbon monoxide
COMS	Continuous Opacity Monitoring System
dscf	dry standard cubic feet
EPA	The United States Environmental Protection Agency
FCAA	Federal Clean Air Act
FCCU	Fluid catalytic cracking unit
FGS	Flue gas scrubber
gr	grain, a unit of mass (there are 7,000 grains in a lb)
GHG	Greenhouse Gases
H <sub>2</sub> S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
HC	Hydrocarbons
HRSG	Heat Recovery Steam Generator
ISO	International Organization for Standardization
LDAR	Leak Detection and Repair
MACT	Maximum Achievable Control Technology

MMBtu	Million British thermal units
MR&R	Monitoring, recordkeeping, and reporting requirements
NAAQS	National Ambient Air Quality Standards
NH <sub>3</sub>	Ammonia
NOC	Notice of Construction
NO <sub>x</sub>	Oxides of Nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
NWCAA	Northwest Clean Air Agency
O <sub>2</sub>	Oxygen
O <sub>3</sub>	Ozone
OAC	Order of Approval to Construct
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter less than 10 micrometers in diameter
PM <sub>2.5</sub>	Particulate Matter less than 2.5 micrometers in diameter
ppb	parts per billion
ppmvd	parts of pollutant per million parts of dry stack gas on a volumetric basis
PSD	Prevention of Significant Deterioration
psia	pounds per square inch absolute
PTE	Potential to emit
QA/QC	quality assurance/quality control
RACT	Reasonably Available Control Technology
RATA	Relative Accuracy Test Audit
RCW	Revised Code of Washington
SCR	Selective Catalytic Reduction
scf	standard cubic foot (cubic foot of gas at ISO STP)
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SRU	Sulfur recovery unit
STP	Standard Temperature and Pressure
TAP	Toxic Air Pollutant
TSP	Total Suspended Particulates
ULSD	Ultra low sulfur diesel (less than 15 ppm sulfur content)

VOC Volatile Organic Compounds  
WAC Washington Administration Code  
WDOE Washington State Department of Ecology

## **APPENDIX A**

Figure A-1 – Location map

Figure A-2 – Site Plan



Figure A - 1 Location Map (from Google Maps, accessed on May 14, 2012)

### MOUNT VERNON FACILITY PLOT PLAN

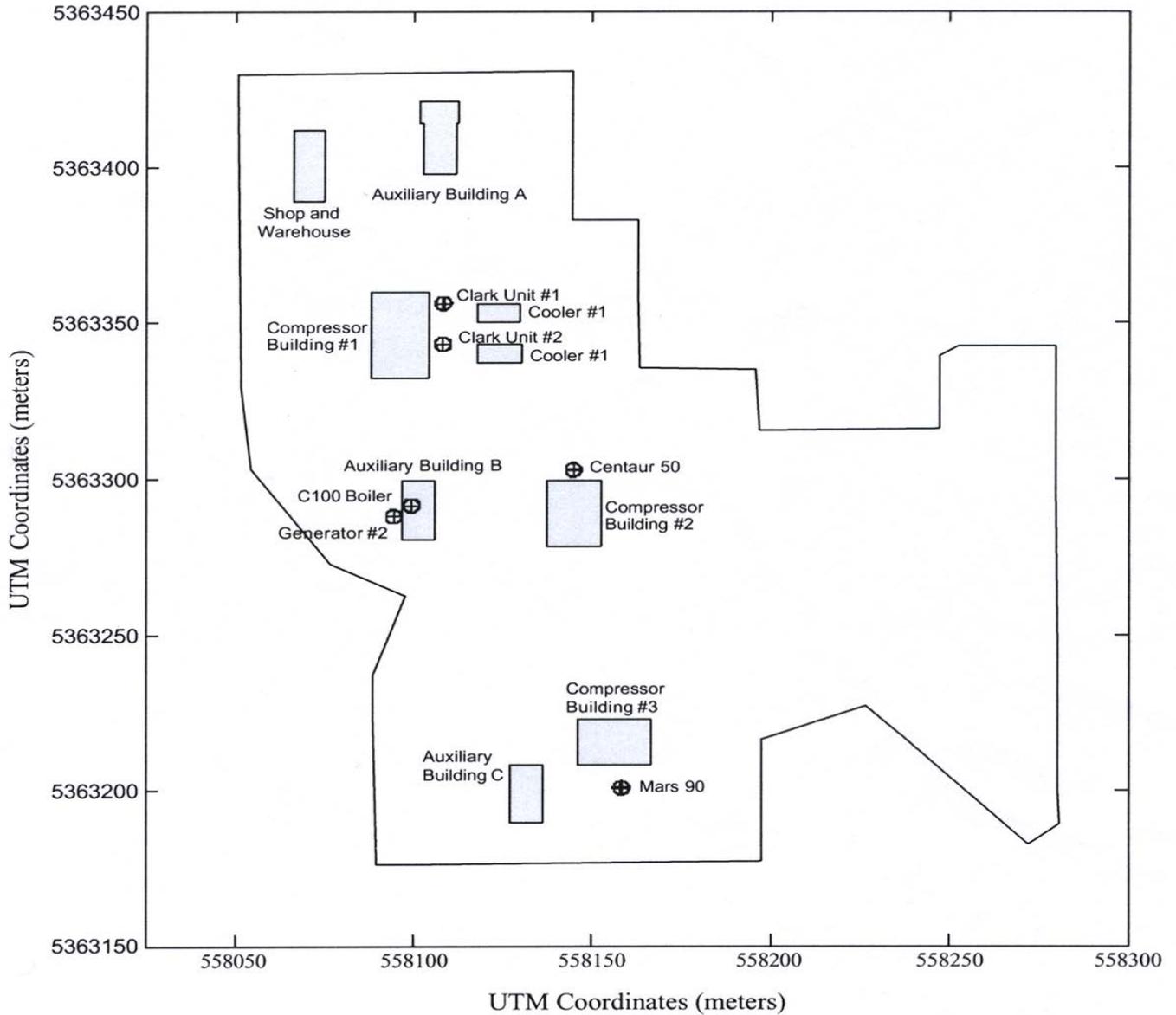


Figure A - 2 Site Plot Plan