

**Northwest Pipeline Corporation**

**Chehalis Compressor Station**

**Title V Basis Statement**

**Final Issued: March 31, 2006**

Southwest Clean Air Agency  
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PERMIT #: SW98-6-R1

ISSUED TO:

Northwest Pipeline Corporation  
295 Chipeta Way  
P. O. Box 58900  
Salt Lake City, UT 84158-0900

PLANT SITE:

Northwest Pipeline Corporation  
Chehalis Compressor Station  
156 Meier Road West  
Chehalis, WA 98596

PERMIT ENGINEER: Natalia Kreitzer, Air Quality Engineer

REVIEWED BY: Paul T. Mairose, Chief Engineer

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**GENERAL INFORMATION AND CERTIFICATION**

1. Company Name: Northwest Pipeline Corporation
2. Facility Name: Chehalis Compressor Station
3. Parent Company: The Williams Companies
4. Responsible Official: Larry Hjalmarson, Director of Operations
5. Facility Contact Person: Scott Peters, Environmental Engineer
6. Unified Business Identification Number: 600121240
7. Standard Industrial Classification Code: 4922 [NAICS - 486210]
8. Basis for Title V Applicability:  
Northwest Pipeline Corporation has the potential to emit more than 100 tpy of nitrogen oxides, more than 100 tpy of carbon monoxide and greater than 10 tpy of formaldehyde.
9. Attainment Area:  
Northwest Pipeline Corporation Chehalis Compressor Station is located in an area which is in attainment for all pollutants.
10. Facility Description:  
Northwest Pipeline Corporation operates a natural gas pipeline system that spans from the Canadian border near Sumas, Washington to the San Juan Gas Fields in New Mexico. Natural gas compressor stations are located about every 50 miles along the pipeline. Each station is designed for remote, unattended operation from Salt Lake City, Utah.  
  
The Chehalis Compressor Station is located near Winlock in Lewis County, Washington. The facility consists of one reciprocating engine in the compressor building, one mobile skid-mounted Saturn turbine outside the compressor building, two mobile skid-mounted Centaur turbines located outside, an auxiliary building, and the piping associated with the station.  
  
Northwest Pipeline Corporation Chehalis Compressor Station has six emission units designated as EU1 through EU6.

## II. EMISSION UNIT DESCRIPTIONS

### EU1 Engine

Emission Unit #1 is a Cooper-Bessemer model 14V330C2, serial number 47707, turbocharged 14 cylinder, two cycle reciprocating engine-driven compressor rated at 6,350 horsepower, equipped with clean burn technology. The engine burns natural gas and has been permitted to operate 8,760 hours per year. Criteria pollutants emitted from the operation of the engine include NO<sub>x</sub>, CO, SO<sub>2</sub>, PM, and VOCs. Hazardous air pollutants emitted from the operation of the engine include benzene, formaldehyde and mercury.

### EU2 Turbine

Emission Unit #2 is a Solar Turbines, Inc. Saturn model T-1300 gas turbine rated at 1,164 horsepower output. The turbine is mobile and may be relocated to other compressor stations as necessary. The turbine burns natural gas fuel and is permitted to operate 8,760 hours per year. Criteria pollutants emitted from the operation of the turbine include NO<sub>x</sub>, CO, SO<sub>2</sub>, PM, and VOCs. Hazardous air pollutants emitted from the operation of the turbine include formaldehyde and mercury. 40 CFR 60 Subpart GG "Standards of Performance for Stationary Gas Turbines" applies to the turbine. Pursuant to 40 CFR 60.8, an initial source test was conducted on April 24, 1995 at four loads ranging from 88% to 100% of maximum load. Since there is no fuel-bound nitrogen in pipeline quality natural gas, nitrogen monitoring has been waived by EPA letter dated January 19, 1999. The sulfur dioxide emission limitation does apply and Northwest Pipeline will use the Length of Stain Tube test or the Medor Gas Chromatograph Method as approved by EPA Region 10 in a letter dated January 19, 1999 as alternate methods for fuel gas sulfur analysis.

### EU3 Turbine

Emission Unit #3 is a Solar Turbines, Inc. Centaur 40T-4700S SOLONOX gas turbine rated at 4,846 horsepower output. The turbine is mobile and may be relocated to other compressor stations as necessary. The turbine burns natural gas fuel and is permitted to operate when the reciprocating engine is not available. Criteria pollutants emitted from the operation of the turbine include NO<sub>x</sub>, CO, SO<sub>2</sub>, PM, and VOCs. Hazardous air pollutants emitted from the operation of the turbine include formaldehyde and mercury. 40 CFR 60 Subpart GG "Standards of Performance for Stationary Gas Turbines" applies to the turbine. Since there is no fuel-bound nitrogen in pipeline quality natural gas, nitrogen monitoring has been waived by EPA letter dated January 19, 1999. The sulfur dioxide emission limitation does apply and Northwest Pipeline will use the Length of Stain Tube test or the Medor Gas Chromatograph Method as approved by EPA Region 10 in a letter dated January 19, 1999 as alternate methods for fuel gas sulfur analysis.

**EU4 Turbine**

Emission Unit #4 is a Solar Turbines, Inc. Centaur 40T-4700S SOLONOX gas turbine rated at 4,846 horsepower output. The turbine is mobile and may be relocated to other compressor stations as necessary. The turbine burns natural gas fuel and is permitted to operate when the reciprocating engine is not available. Criteria pollutants emitted from the operation of the turbine include NO<sub>x</sub>, CO, SO<sub>2</sub>, PM, and VOCs. Hazardous air pollutants emitted from the operation of the turbine include formaldehyde and mercury. 40 CFR 60 Subpart GG "Standards of Performance for Stationary Gas Turbines" applies to the turbine. Since there is no fuel-bound nitrogen in pipeline quality natural gas, nitrogen monitoring has been waived by EPA letter dated January 19, 1999. The sulfur dioxide emission limitation does apply and Northwest Pipeline will use the Length of Stain Tube test or the Medor Gas Chromatograph Method as approved by EPA Region 10 in a letter dated January 19, 1999 as alternate methods for fuel gas sulfur analysis.

**EU5 Boiler**

Emission Unit #5 is a Sellers model C40W, serial no. 4780, natural gas fired process heater (boiler) with a heat input rate of 1.7 MMBtu per hour. The boiler provides hot water for process heating. Criteria pollutants emitted from the operation of the boiler include NO<sub>x</sub>, CO, SO<sub>2</sub>, PM, and VOCs. Hazardous air pollutants emitted from the operation of the boiler include formaldehyde and mercury.

**EU6 Generator**

Emission Unit #6 is a Caterpillar 422 kw, 566 hp, engine model 3412SPT, serial number 7DB01021, emergency electrical generator which is natural gas fired. Criteria pollutants emitted from the operation of the generator include NO<sub>x</sub>, CO, SO<sub>2</sub>, PM, and VOCs. Hazardous air pollutants emitted from the operation of the generator include benzene, formaldehyde and mercury.

**III. EXPLANATION OF INSIGNIFICANT EMISSION UNIT DETERMINATIONS**

Each emission unit listed as insignificant in the permit has been reviewed by SWCAA to confirm its status. The emission units were determined to be insignificant as follows:

**IEU1 Glycol Storage and Handling**

Glycol storage and handling is insignificant in accordance with WAC 173-401-532(4).

**IEU2 Emissions from Natural Gas Pipeline and Fuel System**

Fugitive emissions from the natural gas pipeline and fuel system are insignificant in accordance with WAC 173-401-530(1)(d).

**IEU3 Utility Building Heater**

The utility building heater is rated at 145,000 Btu/hour. This unit is not regulated under any specific SWCAA Order of Approval and is categorically exempt per WAC 173-401-533(2).

**IV. EXPLANATION OF APPLICABLE REQUIREMENTS****G8. Portable Sources**

[SWCAA 400-110(5) (SIP only), WAC 173-400-035, SWCAA 400-110(6)]

WAC 173-400-110(5) in the SIP (replaced in the State only rules by WAC 173-400-035) and SWCAA 400-110(6) establish procedures for approving the operation of portable sources of air emissions that locate temporarily at project sites. These requirements are general statewide standards, and apply to all portable sources of air contaminants. Common equipment subject to these conditions include emergency generators, engine-powered pumps, rock crushers, concrete batch plants, and hot mix asphalt plants that operate for a short time period at a site to fulfill the needs of a specific contract. Portable sources exempt from registration under SWCAA 400-101 are exempt from SWCAA 400-110 and not subject to the portable sources requirements. Among those categories listed in SWCAA 400-101 that are exempt, are operations with potential to emit less than 1 ton/yr of all criteria pollutants plus volatile organic compounds, combined.

These requirements are general statewide standards and apply to EU2, EU3 and EU4. Notification of the residents of adjacent properties was completed by publication in The Chronicle on July 2, 1998 and October 16, 1997.

**G9. Excess Emissions**

[SWCAA 400-107, WAC 173-400-107]

WAC 173-400-107 and SWCAA 400-107 establish criteria and procedures for determining when excess emissions are considered unavoidable. Such emissions that meet the requirements to be classified as unavoidable are excused and not subject to penalty. Excess emissions due to startup or shutdown conditions are considered unavoidable.

**Req. 1-2 New Source Performance Standards for Stationary Turbines, Subpart GG**

[40 CFR 60.330]

Title 40 CFR 60.330 (Subpart GG) established NO<sub>x</sub> and SO<sub>2</sub> emission standards for affected facilities. This is an affected facility because the turbines (EU2, EU3 and EU4) have a heat input at peak load greater than 10.7 gigajoules per hour and were installed after October 3, 1977.

40 CFR 60.332 contains equations for calculating a NO<sub>x</sub> emission limit based on gas turbine size and type. The Solar Centaur gas turbines (with rated base load less than 30 megawatts) are required by 40 CFR 60.332(d) to comply with an emission limit calculated using an equation in 40 CFR 60.332(a)(2). The applicable NO<sub>x</sub> standard was calculated as 150 ppm NO<sub>x</sub> at 15%, ISO conditions for Emission Unit #2. The equation is as follows:

$$\text{STD} = \frac{0.15(14.4)}{Y} + F = \frac{0.15(14.4)}{14.4} + 0 = 0.0150\%$$

STD = allowable NO<sub>x</sub> emissions (percent by volume) = 150 ppm

Y = manufacturers rated heat rate at peak load (kj/w-hr)= 14.4 maximum value

F = NO<sub>x</sub> emission allowance for fuel bound nitrogen = 0

The applicable NO<sub>x</sub> standard for Emission Units #3 and #4 were calculated as 153 ppm NO<sub>x</sub> at 15%, ISO conditions as follows:

$$\text{STD} = \frac{0.15(14.4)}{Y} + F = \frac{0.15(14.4)}{14.2} + 0 = 0.0152\%$$

STD = allowable NO<sub>x</sub> emissions (percent by volume) = 152 ppm

Y = manufacturers rated heat rate at peak load (kj/w-hr)= 14.2

F = NO<sub>x</sub> emission allowance for fuel bound nitrogen = 0

### **Req. 3-10 General Standards for Maximum Emissions**

[WAC 173-400-040, SWCAA 400-040]

WAC 173-400-040 and SWCAA 400-040 establish maximum emission standards for various air contaminants. Therefore, these standards apply to all emission units at the source, both EU and IEU. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing, monitoring, recordkeeping, or reporting requirements for IEUs except those specifically identified by the underlying requirements.

### **Req. 11 Emission Standards for Combustion and Incineration Units**

[WAC 173-400-050, SWCAA 400-050]

WAC 173-400-050 and SWCAA 400-050 establish maximum emission standards for selected emissions from combustion and incineration units. These requirements apply to all combustion and incineration units at the source, both EUs and IEUs. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing, monitoring, recordkeeping, or reporting requirements for IEUs except those specifically identified by the underlying requirements.

### **Req. 12 Emission Standards for General Process Units**

[WAC 173-400-060, SWCAA 400-060]

WAC 173-400-060 and SWCAA 400-060 establish maximum particulate matter emission standards for general process units. These requirements apply to all general process units at the source, both EUs and IEUs. Pursuant to WAC 401-530(2)(c), the permit does not contain any testing, monitoring, recordkeeping, or reporting requirements for IEUs except those specifically identified by the underlying requirements.

### **Req. 13-63 SWCAA Air Discharge Permits**

[SWCAA 96-1946, SWCAA 98-2129R1]

Air Discharge Permit SWCAA 96-1946 established emission reduction credits for NO<sub>x</sub> in the amount of 59.3 tons, deposited into the SWCAA emission reduction credit bank. No portion of

SWCAA 96-1946 is listed as an applicable requirement because the Air Discharge Permit did not contain any ongoing requirements. These credits must be used within 10 years.

Air Discharge Permit SWCAA 97-2064R1 superseded SWCAA 94-1717 and SWCAA 97-2013 in their entirety. SWCAA 97-2064 approved an increase in formaldehyde and benzene emission limits. Air Discharge Permit SWCAA 98-2129 superseded SWCAA 97-2064 in its entirety. SWCAA 98-2129 approved the installation of two mobile Centaur turbines to be used as replacement to the reciprocating engine. Air Discharge Permit SWCAA 98-2129R1 superseded SWCAA 98-2129. SWCAA 98-2129 approved operation of one mobile Centaur turbine continuously and in conjunction with the reciprocating engine. This Air Discharge Permit contained the following annual emission limits:

<u>Pollutant</u>	<u>Reciprocating Engine and/or Turbines</u>	<u>Boiler</u>	<u>Generator</u>
NO <sub>x</sub>	205.4 tpy	1,566 lbs/yr	3,509 lbs/yr
CO	146.5 tpy	1,316 lbs/yr	756 lbs/yr
VOC	37.2 tpy	86.2 lbs/yr	208 lbs/yr
SO <sub>2</sub>	8.3 tpy	9.4 lbs/yr	0.43 lbs/yr
PM	16.6 tpy	119 lbs/yr	5.4 lbs/yr
Formaldehyde	15.1 tpy	1.2 lbs/yr	94.1 lbs/yr
Benzene	512 lbs/yr	0.03 lbs/yr	0.41 lbs/yr
Mercury	6.7 lbs/yr	0.17 lbs/yr	0.01 lbs/yr

## V. EXPLANATION OF OBSOLETE AND FUTURE REQUIREMENTS

### 1. Title 40 CFR 60.7 "Notification and Record Keeping"

Notification for installation of the Saturn turbine (EU2) was made to SWCAA on February 26, 1997 and included an estimated installation date of March 17, 1997 and an estimated completion date of April 1, 1997. Notification for installation of the Centaur turbines (EU3 and EU4) was made to SWCAA on April 7, 1998 and included an estimated installation date of June 1, 1998 and an estimated completion date of June 21, 1998.

### 2. Title 40 CFR 60.8 "Performance Tests"

The initial Saturn turbine (EU2) source test was conducted April 24, 1995. The initial Centaur turbine (EU3 and EU4) source tests were conducted on November 4, 1998 and September 22-23, 1998 at the Snohomish Compressor Station and the Mt. Vernon Compressor Station.

### 3. Regulatory Air Discharge Permits

Air Discharge Permit SWCAA 94-1717 approved a CleanBurn™ retrofit of the existing reciprocating engine and replacement of the existing boiler and emergency generator with new models. Order of Approval SWCAA 97-2013 approved installation of a portable turbine and an increase in the particulate matter emission limit. SWCAA 97-2064 approved an increase in formaldehyde and benzene emission limits. SWCAA 98-2129 approved the installation of two mobile Centaur turbines to be used as replacement to the reciprocating engine.

#### 4. New Source Review and PSD Applicability to Replacement of Turbine Engines

WDOE has written a letter dated September 9, 1999 to EPA requesting assistance in consistently applying the federal rules for planned maintenance of existing gas turbine engines. Once EPA guidance is received, the Basis Statement may be modified to incorporate this guidance.

### VI. EXPLANATION OF MONITORING/RECORDKEEPING REQUIREMENTS

#### M1. NO<sub>x</sub> Standard

The requirement cited in this monitoring section is taken from Subpart GG, 40 CFR 60.332(a)(2) and 40 CFR 60.334(i)(2). Since there is no fuel-bound nitrogen in pipeline quality natural gas, there is a waiver from EPA in a letter dated January 19, 1999 for the daily fuel nitrogen content requirement in 40 CFR 60.334(i)(2).

#### M2. SO<sub>2</sub> Standard

The requirement cited in this monitoring section is taken from Air Discharge Permit 97-2063R1 Section 31. 40 CFR 60.334(h)(3) no longer requires monitoring the total sulfur content of gaseous fuels that meet the definition of natural gas. However sulfur monitoring is still required by the Air Discharge Permit. Compliance with the 0.8% sulfur content of the natural gas is to be determined by using the Length of Stain Tube test or the Medor Gas Chromatograph Method which were approved as alternate methods by EPA Region 10 in a letter dated January 19, 1999 (Appendix B). The reports were required to be submitted bimonthly, followed by quarterly, then semiannually, given at least six months of data demonstrating little variability in sulfur content. The variability over a four year period has been no more than 0 to 1.5 ppm, therefore, SWCAA has deemed semiannual reporting acceptable.

#### M3. Opacity Monitoring

The applicable requirements cited in this monitoring section are general requirements drawn from WAC 173-400 and SWCAA 400 as well as Air Discharge Permit SWCAA 98-2129R1. These requirements do not directly establish any specific regime of monitoring or recordkeeping. Consequently, SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615. These requirements are designed to assure compliance through periodic facility inspections and prompt corrective action. Demonstration of compliance is required in some cases via visible emissions evaluation. The emission units at this facility combust only natural gas. Visible emissions, other than heat waves, from natural gas combustion are virtually non-detectable to the human eye. The following equation shows an example calculation of particulate matter concentrations in exhaust gas from natural gas combustion based on an EPA AP-42 emission factor corrected to 7% oxygen:

$$(0.005 \text{ lbs PM/MMBtu}) * (7000 \text{ gr/lb}) * (\text{MMBtu}/8720 \text{ dscf}) * (20.9-15.0)/(20.9) = 0.001 \text{ gr/dscf at 15\% oxygen.}$$

Emissions are generally not visible until the concentration approaches 0.01 gr/dscf. In addition, this source has a history of opacity compliance. Therefore, monthly opacity monitoring is considered adequate for demonstrating compliance with WAC 173-400 and SWCAA 400 requirements as well as SWCAA 98-2129R1 opacity requirements.

#### **M4. Particulate Matter Emissions Monitoring**

The applicable requirements cited in this monitoring section are general requirements drawn from WAC 173-400 and SWCAA 400. These requirements do not directly establish any specific regime of monitoring or recordkeeping. Consequently, SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615. These requirements are designed to assure compliance through periodic facility inspections and prompt corrective action.

The emission units at this facility combust only natural gas. Natural gas fired sources typically do not result in particulate matter violations. Based on analysis it is not possible for these combustion sources to exceed the limit of 0.1 gr/dscf particulate matter. The equation shown in M3 estimates particulate matter to be 0.001 gr/dscf at 15% oxygen. Therefore, fuel certification of fuel type as required in 40 CFR 60.334(b)(2) under M7 along with monthly inspections under M4 are adequate to demonstrate compliance.

#### **M5. Complaint Monitoring**

The applicable requirements cited in this monitoring section are general requirements drawn from WAC 173-400 and SWCAA 400. These requirements do not directly establish any specific regime of monitoring or recordkeeping. Consequently, SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615. These requirements are designed to ensure compliance through prompt complaint response and corrective action. This facility does not have a history of complaints therefore this complaint monitoring is adequate.

#### **M6. Fugitive Emissions Monitoring**

The applicable requirements cited in this monitoring section are all general requirements drawn from WAC 173-400 and SWCAA 400. These requirements do not directly establish any specific regime of monitoring or recordkeeping. Consequently, SWCAA has implemented monitoring and recordkeeping requirements under the "gap filling" provisions of WAC 173-401-615. These requirements are designed to assure compliance through a combination of prompt complaint response and monthly facility inspections.

Potential fugitive emissions from this facility include road dust and odors from fugitive natural gas. Since the facility surface consists of gravel and vehicular traffic is limited to maintenance personnel, road dust is expected to be minimal. Natural gas in the pipeline has not been odorized but does contain small quantities of naturally occurring mercaptans. During normal operation odors are not detectable off site. Monthly facility inspections are adequate to demonstrate compliance with fugitive emissions because odors are not generated as part of routine maintenance but may be generated by upset conditions which will be reduced by preventative maintenance.

**M7. Fuel Certification**

WAC 173-400-040(6) and SWCAA 400-040(6) limit the emission of gaseous sulfur dioxide from any emission unit to a maximum concentration of 1000 ppmv corrected to 7% oxygen. The combustion sources at this source combust only natural gas which has extremely low sulfur content. Based on the composition of natural gas, it is not possible for the combustion sources in question to exceed the limit of 1000 ppmv sulfur dioxide while firing on natural gas. Monitoring has therefore been limited to certification of fuel type. The following equation estimates sulfur dioxide concentrations in exhaust gas from natural gas combustion based on a sulfur grain loading of 1.2 per 100 cubic feet which results in a value of 0.00345 pounds of SO<sub>2</sub> per mmbtu:

$$(0.00345 \text{ lbs/MMBtu}) * (385 \text{ cf/mole}) * (\text{mole}/64.1 \text{ lbs SO}_2) * (\text{MMBtu}/8710 \text{ dscf}) * (20.9 - 15.0)/(20.9) = 1.8 \text{ ppm at 15 percent oxygen}$$

Based on the inherently low concentration of sulfur in pipeline quality natural gas, fuel certification is adequate to demonstrate compliance. Pipeline quality natural gas is defined as a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas contains 20.0 grains or less of total sulfur per 100 standard cubic feet.

**M8. Reciprocating Engine Testing and Emission Limits**

The applicable requirements cited in this monitoring section are taken from Air Discharge Permit SWCAA 98-2129R1. The purpose of testing is to generate emission factors with which to demonstrate compliance. Air Discharge Permit SWCAA 98-2129R1 requires testing to be performed at a maximum load of 330 rpm, 6350 hp and 100% torque. Under certain ambient and pipeline conditions the reciprocating engine does not operate as efficiently and may not achieve these conditions. If, during the source testing process variables do not allow for operation at the specified conditions, any testing is to be performed at maximum rated output.

SWCAA does not believe that the performance from this unit will significantly degrade with time based on emission source tests from similar type units. Therefore, SWCAA believes that testing the unit every two years for CO, VOCs, NO<sub>x</sub> and PM is adequate. Formaldehyde is to be tested every 5,000 hours of operation using EPA Method 320 (FTIR) or EPA Proposed Method 323. Testing was performed at the Chehalis Compressor Station on a similar engine on July 1, 2004. Simultaneous testing was performed using both EPA Method 320 (FTIR) and EPA Proposed Method 323. The two methods agreed within 20% for each test run with an average of 7% difference. Therefore SWCAA has included Proposed Method 323 in the testing methods approved for formaldehyde testing.

Infrequent operation of the engine will result in annual emissions significantly below annual limits. Short term formaldehyde emission limits are based on source test results. The short term limits are combined with hours of operation to obtain an annual emission limit. These short term emission limits will be confirmed every 5,000 hours of operation because they are not

expected to vary significantly. Annual formaldehyde emission compliance is to be demonstrated by monitoring hours of operation. Therefore, testing the reciprocating engine every 5,000 hours of operation is adequate to demonstrate compliance for formaldehyde. In addition, natural gas reciprocating engines typically do not emit significant quantities of SO<sub>2</sub>, benzene or mercury. Emissions of SO<sub>2</sub> and mercury are a function of the fuel composition and are not generated as the result of incomplete combustion. Compliance with the emission limits for SO<sub>2</sub>, benzene and mercury is to be determined by hours of operation and the emission factors contained in the permit.

#### **M9. Turbine Testing and Emission Limits**

The applicable requirements cited in this monitoring section are taken from Air Discharge Permit SWCAA SWCAA 98-2129R1. The purpose of testing is to generate emission factors with which to demonstrate compliance. SWCAA does not believe that the performance from these units will significantly degrade with time based on emission source tests from similar type units. Therefore, SWCAA believes testing every five years is adequate. In addition, natural gas sources do not emit significant quantities of PM, SO<sub>2</sub>, formaldehyde, benzene or mercury. SO<sub>2</sub> and PM emissions from a similar turbine at the Washougal Compressor Station were tested on January 18-19, 1996 and reported as 0.0015 gr/dscf (1.27 tpy) and 0.5ppm (0.46 tpy) at full load for SO<sub>2</sub> and PM, respectively. Formaldehyde emission test results from several turbines were published by the Gas Research Institute. Average formaldehyde emissions were reported as 0.015 lb/hr. Also, emissions of SO<sub>2</sub>, benzene and mercury are a function of the fuel content and are not generated as the result of incomplete combustion. Compliance with the emission limits for PM, SO<sub>2</sub>, formaldehyde, benzene and mercury is to be determined by hours of operation of the unit and the emission factors contained in the permit.

#### **M10. Boiler and Generator Emission Limits**

The boiler and emergency generator are not required to be tested. Emissions from these units are minimal therefore compliance with the emission limits is to be determined by hours of operation and the emission factors contained in the permit.

#### **M11. Simultaneous Equipment Operation**

The requirement cited in this monitoring section is taken from Air Discharge Permit SWCAA 98-2129R1. Compliance is to be demonstrated by a continuous monitoring startup and shutdown conditions of the reciprocating engine, Saturn turbine and Centaur turbines.

#### **M12. RPM and Torque for Reciprocating Engine**

The requirement cited in this monitoring section is taken from Air Discharge Permit SWCAA 98-2129R1. Compliance is to be demonstrated by a continuous monitor for the rpm and torque. The data is to be reported based on hourly averages.

### **VII. EXPLANATION OF RECORDKEEPING REQUIREMENTS**

This reporting section is taken directly from WAC 173-401-615(2). Sections b and c were added to clarify routine inspections and complaints.

## **VIII. EXPLANATION OF REPORTING REQUIREMENTS**

### **R1. Deviations from Permit Conditions**

This reporting section is taken directly from WAC 173-401-615(3).

### **R2. Complaint Reports**

The permittee is required to report all complaints received by the permittee or forwarded to the permittee by SWCAA regarding the compressor station property excluding noise or right-of-way issues to SWCAA within three business days of receipt to ensure prompt complaint response. This reporting section is based on WAC 173-401-615(3), and SWCAA's definition of "prompt" for reporting of complaints.

### **R3. Semi-annual Reports**

The permittee is required to report monitoring records and certification of monitoring records on a semi-annual basis. Semi-annual reporting of monitoring records and certification of monitoring records is required by WAC 173-401-615(3). Section C of the semi-annual reports was taken from Air Discharge Permit 98-2129R1.

### **R4. Annual Reports**

The permittee is required to report and certify compliance with all permit terms and conditions on an annual basis. Annual compliance certification is required by WAC 173-401-630(5). 40 CFR 60.11(g) requires the permittee to consider credible evidence when submitting compliance certifications to NSPS affected units EU2, EU3 and EU4.

### **R5. Emission Inventory Reports**

The permittee is required to report an inventory of annual emissions as provided in WAC 173-400-105 and SWCAA 400-105. This complete emission inventory includes emissions from all EUs.

### **R6. Source Test Reports**

The permittee is required to submit test results to SWCAA within 45 days of test completion to allow timely review by SWCAA.

**IX. APPENDIX**

Appendix A contains the method by which visible emissions from the permittee's operations are to be evaluated when demonstrating compliance if any visible emissions are observed. SWCAA has traditionally determined compliance with local visible emission standards using EPA Method 9 with modified data reduction. SWCAA has exercised its latitude under SWCAA 400-105(4) "Source Testing" to approve this alternative test method in advance for visible emission evaluation. Approval has been granted via signature of this permit by SWCAA's Executive Director. The alternative method shall be used to determine compliance only with state and local opacity standards. Determination of compliance with any federally established opacity standard requires that EPA Method 9 be performed. This Appendix is included to define the visible emission standard. It does not necessarily require that Northwest Pipeline Corporation personnel be certified in its use.

Appendix B contains the alternate Length of Stain Tube method and the alternate Medor Gas Chromatograph method approved by EPA for fuel gas sulfur analysis.

Appendix C contains the criteria which must be met in order to use an alternate test method for formaldehyde.

**X. PERMIT ACTIONS**

- |  |                   |
|--|-------------------|
| 1. Permit Renewal Application Submitted: | February 27, 2004 |
| 2. Permit Application deemed complete:   | April 14, 2004    |
| 3. Permit Application sent to EPA:       | November 17, 2005 |
| 4. Draft permit issued:                  | December 2, 2005  |
| 5. Proposed permit issued:               | February 2, 2006  |
| 6. Final permit issued:                  | March 31, 2006    |