



**Lane Regional Air Protection Agency
Standard Air Contaminant Discharge Permit**



REVIEW REPORT

NW Pipeline LLC – Eugene Compressor Station
85166 North Hideaway Hills Road
Eugene, Oregon 97405
Website: <https://www.northwest.williams.com/>

Permit No. 205811

Source Information:

Primary SIC	4922 – Natural Gas Transmission
Secondary SIC	--
Primary NAICS	486210 – Pipeline Transportation of Natural Gas
Secondary NAICS	--
Source	B:75. – All other sources which

Categories (LRAPA Title 37, Table 1)	would have actual emissions, if the source were to operate uncontrolled, 10 or more tons per year of any single criteria pollutant C:3. – All sources electing to maintain the source's netting basis
Public Notice Category	II

Compliance and Emissions Monitoring Requirements:

Unassigned Emissions	N
Emission Credits	N
Special Conditions	N
Compliance Schedule	N

Source Test [date(s)]	Annually - NOx, SO ₂
COMS	N
CEMS	N
Ambient monitoring	N

Reporting Requirements

Annual Report (due date)	March 15
SACC (due date)	N
GHG Report (due date)	N
NSPS Report (due date)	N

Monthly Report (due dates)	N
Excess Emissions Report	N
Other Reports (due date)	N

Air Programs

NSPS (list subparts)	GG, KKKK
NESHAP (list subparts)	JJJJ, ZZZZ
CAM	N
Regional Haze (RH)	N
Synthetic Minor (SM)	N
SM-80	N
Title V	N
Part 68 Risk Management	N
ACDP (SIP)	N
Major FHAP Source	N
Federal Major Source	N
New Source Review (NSR)	N
Prevention of Significant Deterioration (PSD)	N
Acid Rain	N
Clean Air Mercury Rule (CAMR)	N
TACT	N

Permittee Identification

1. Northwest Pipeline LLC (“the facility”) operates a natural gas compressor station at 85166 Hideaway Hills Road in Eugene, Oregon that is owned by the Williams Corporation.

General Background

2. The facility operates two natural gas-fired combustion turbines, one of which is portable, and a natural gas blowdown stack. The facility is used primarily to compress natural gas and exert pressure in the 16-inch natural gas pipeline that terminates in Grants Pass, Oregon. By the time the gas reaches the Eugene facility, there is typically sufficient pressure in the pipeline system provided by the compressor stations upstream to propel the gas. The facility only runs during certain times of the day and/or year when natural gas demand is high and/or temperatures are cold enough such that additional pressure is needed.

Reasons for Permit Action and Fee Basis

3. The facility operates a process listed in LRAPA Title 37, Table 1, Part B (B.75, All other sources, both stationary and portable, not listed herein which would have actual emissions, if the source were to operate uncontrolled, of 5 or more tons per year of direct PM_{2.5} or PM₁₀ if located in a PM_{2.5} or PM₁₀ nonattainment or maintenance area, or 10 or more tons per year of any single criteria pollutant if located in any part of Lane County) and is, therefore, required to obtain a permit. In addition, the facility has elected to maintain the source’s netting basis. As such, the facility is required to have a Standard ACDP. The facility has applied for the renewal of their existing Standard ACDP. The application for the renewal of this permit was received on March 11, 2021. The renewed Standard ACDP will be valid for five years.

Attainment Status

4. The facility is located outside the Eugene-Springfield UGB as defined in Title 29. The facility is located in an area that has been designated as attainment for all criteria pollutants.

Permitting History

5. LRAPA has reviewed and issued the following permitting actions to this facility:

Date Approved/Valid	Permit Action Type	Description
10/02/1995-10/01/2000	ACDP	Initial
11/06/1995	NC-205811-A95	Authorization to install blowdown stack
10/02/2000-10/01/2005	ACDP	Renewal
10/02/2005-10/01/2010	ACDP	Renewal
05/12/2009	ACDP Addendum No. 1	Administrative amendment to change the permit type and fee basis
05/06/2010	NC-205811-A10	Authorization to upgrade Solar Saturn Turbine T-1001 to Solar Saturn Turbine T-1302
05/28/2010	ACDP Addendum No. 2	Simple non-technical permit modification to upgrade Solar Saturn Turbine T-1001 to Solar Saturn Turbine T-1302
08/20/2010	Approval Letter	Authorization to install 237 hp natural gas-fired backup generator
03/24/2011-03/24/2016	ACDP	Renewal
2014	ACDP Addendum No. 3	Administrative amendment to change the legal name of the facility
09/14/2016-09/14/2021	ACDP	Renewal

Emission Unit Description

6. The emission units regulated by the permit are the following:

EU ID	Emission Unit Description	Control Device Description	PCD ID
EU-1	Solar Saturn T-1302: 1340 hp natural gas-fired combustion turbine	None	None
EU-2	Solar Saturn T-1310: 1300 hp natural gas-fired combustion turbine (portable)	None	None
EU-3	One (1) natural gas blowdown stack	None	None
Categorically Insignificant Activities			
CIA-1	One (1) natural gas-fired emergency generator, 237 hp	None	None
CIA-2	One (1) natural gas-fired process heater, 0.125 MMBtu/hr	None	None

7. EU-1 is a Solar Saturn T-1302 natural gas-fired combustion turbine with a maximum rating of 1340 hp. This unit was originally a T-1001 combustion turbine. In 2010, the engine core was upgraded to a larger size (1001 to a 1302). The supporting ancillary equipment and controls on the skid were modified or replaced to accommodate the replacement engine. Off-skid ancillary equipment (i.e. exhaust muffler, air inlet, fuel gas system) were reused.
8. EU-2 is a Solar Saturn T-1310 natural gas-fired combustion turbine with a maximum rating of 1300 hp placed in service in 1993. This combustion turbine is portable and is used to provide maintenance support at compressor stations around the Pacific Northwest.
9. EU-3 is a natural gas blowdown stack. This unit is used to flare natural gas within compressors and associated piping when compressor stations are taken offline for maintenance or the system shuts down. The unit is rated at 15 Mscf per hour of natural gas.
10. CIA-1 is a natural gas-fired emergency generator rated at 237 hp and 177 kW. The unit is equipped with a 2009 model year engine and was installed in 2010. This emission unit is considered to be a Categorically Insignificant Activity (CIA) as per the definition of CIA in LRAPA Title 12, Item UU.
11. CIA-2 is a natural gas-fired process heater with a maximum heat input rating of 0.125 MMBtu per hour. The process heater prevents formation of natural gas water hydrates and maintains natural gas temperatures above the desired hydrocarbon dew point. This emission unit is considered to be a Categorically Insignificant Activity (CIA) as per the definition of CIA in LRAPA Title 12, Item C.

General Emission Limitations

12. All emission units at the facility are subject to the visible emission limitations under LRAPA 32-010(3). These emission units may not have visible emissions equal to or greater than 20% opacity for a period or periods aggregating more than three (3) minutes in any one (1) hour.
13. The emission units that meet the definition of “fuel burning equipment” under Title 12 are subject to the particulate matter emission limitations under LRAPA 32-030(1)(b). The only emission unit that meets this definition is CIA-2. For fuel burning equipment installed, constructed or modified after June 1, 1970, but prior to April 16, 2015, the particulate matter emission limit is 0.14 grains per dry standard cubic foot if there are no representative compliance source test results collected prior to April 16, 2015.
14. All other emission units at the facility that do not meet the definition of “fuel burning equipment” under Title 12 are subject to the particulate matter emission limitations under LRAPA 32-015(2)(b)(B). For sources installed, constructed or modified after June 1, 1970, but prior to April 16,

2015, the particulate matter emission limit is 0.14 grains per dry standard cubic foot if there are no representative compliance source test results collected prior to April 16, 2015.

15. None of these emission units are subject to the process weight rate emission limitations under LRAPA 32-045(1) because gaseous fuels and combustion air are not included in the total weight of all materials for determining a particulate emission standard under Section 32-8010.

Typically Achievable Control Technology (TACT)

16. LRAPA 32-008 requires an existing unit a facility to meet TACT if the emission unit meets the following criteria: The emission unit is not already subject to emission standards for the regulated pollutant under Title 30, Title 32, Title 33, Title 38, Title 39 or Title 46 at the time TACT is required; the source is required to have a permit; the emission unit has emissions of criteria pollutants equal to or greater than five (5) tons per year of particulate or ten (10) tons per year of any gaseous pollutant; and LRAPA determines that air pollution control devices and emission reduction processes in use for the emissions do not represent TACT and that further emission control is necessary to address documented nuisance conditions, address an increase in emissions, ensure that the source is in compliance with other applicable requirements, or to protect public health or welfare or the environment.
- 16a. EU-1 has the potential to emit more than 10 TPY of NOx. Because this emission unit is subject to an emission standard for NOx under Title 46 it is not required to meet TACT for this pollutant.
- 16b. EU-2 has the potential to emit more than 10 TPY CO and is required to meet TACT for this pollutant. LRAPA has previously determined that good combustion practices for this emission unit are considered TACT for this pollutant.

Plant Site Emission Limits (PSELs)

17. Provided below is a summary of the baseline emissions rate, netting basis, plant site emission limit, and emissions capacity.

Pollutant	Original Baseline Emission Rate (TPY)	Adjusted Baseline Emission Rate (TPY)	Netting Basis		Plant Site Emission Limit (PSEL)		PTE (TPY)
			Previous (TPY)	Proposed (TPY)	Previous PSEL (TPY)	Proposed PSEL (TPY)	
PM	0.4	0.4	0.4	0.4	24	24	1.01
PM ₁₀	0.4	0.4	0.4	0.4	14	14	1.01
PM _{2.5}	NA	NA	NA	0.4	9	9	1.01
CO	1.1	1.1	1.1	1.1	99	99	22.1
NOx	4.3	4.3	4.3	4.3	43	39	21.7
SO ₂	0.1	0.1	0.1	0.1	de minimis	de minimis	0.49
VOC	0.2	0.2	0.2	0.2	de minimis	de minimis	0.34
GHGs (CO _{2e})	274	346	274	346	de minimis	74,000	17,880

- 17a. The baseline emission rates for PM, PM₁₀, CO, NO_x, SO₂, and VOC represent estimated actual emissions from 1978 and were determined in previous permitting actions. A baseline emission rate is not established for PM_{2.5} in accordance with LRAPA 42-0048(3). The baseline emission rate for GHGs represents the actual emissions for calendar year 2010 as established under the ACDP issued on 09/04/2016. The GHG baseline emission rate has been corrected as part of this review to reflect changes in the emission factors used in 40 CFR 98 for combustion of natural gas, changes in the global warming potential factors, and the mistaken use of metric tons rather than short tons to set the baseline.
- 17b. The netting basis for PM, PM₁₀, CO, NO_x, SO₂, and VOC are the same as the baseline emission rates. The netting basis for GHGs has been modified to reflect the change in the

baseline emission rate made as part of this review. A netting basis was not established for PM_{2.5} under previous reviews. Consistent with 42-0046(2)(b)(B), the PM_{2.5} netting basis was calculated based upon the PM_{2.5} fraction of the PM₁₀ PSEL in effect on May 1, 2011, multiplied by the PM₁₀ netting basis that would have been in effect on May 1, 2011. The PM_{2.5} fraction of PM₁₀ PSEL is assumed to be 100%

- 17c. The PSELs are set in accordance with 42-0040 and 42-0041. Under 42-0041(1), sources with a potential to emit less than the SER that request a source specific PSEL, the source specific PSEL will be set equal to the generic PSEL level. The PSEL for NO_x was incorrectly set to a source-specific level based on the netting basis plus the SER in previous reviews. The NO_x PSEL has been reset to the generic PSEL level. Under 40-0020(3)(a), no PSEL will be set for SO₂ or VOC emissions. A PSEL will be set for GHGs as part of this review because the facility has the capability to emit at more than the de minimis level.

Unassigned Emissions and Emission Reduction Credits

18. The facility has zero (0) unassigned emissions as shown in the table below. Unassigned emissions are equal to the netting basis minus the source’s current PTE, minus any banked emission reduction credits. In accordance with LRAPA 42-0055 the maximum unassigned emissions may not be more than the SER.

Pollutant	Unassigned Emissions (TPY)	Emission Reduction Credits (TPY)	SER (TPY)
PM	0	0	25
PM ₁₀	0	0	15
PM _{2.5}	0	0	10
CO	0	0	100
NO _x	0	0	40
SO ₂	0	0	40
VOC	0	0	40
GHGs (CO ₂ e)	0	0	75,000

Significant Emission Rate

19. The PSEL increase over the netting basis is less than the Significant Emission Rate (SER) as defined in Title 12 for all pollutants as shown below.

Pollutant	PSEL Increase Over Netting Basis (TPY)	Increase Due to Utilizing Capacity That Existed In The Baseline Period (TPY)	Increase Due to Physical Changes or Changes In The Method of Operation (TPY)	SER (TPY)
PM	24	0	0	25
PM ₁₀	14	0	0	15
PM _{2.5}	10	0	0	10
CO	98	0	0	100
NO _x	39	0	0	40
SO ₂	NA	NA	NA	40
VOC	NA	NA	NA	40
GHGs (CO ₂ e)	74,000	0	0	75,000

Prevention of Significant Deterioration (PSD)

20. Because this source is not a listed source and the proposed PSELs for all regulated pollutants are below the federal major source threshold of 250 TPY, the facility is not a Prevention of Significant Deterioration (PSD) major source. This facility is also not located in a nonattainment, reattainment or maintenance area.

Federal Hazardous Air Pollutants/Toxic Air Contaminants

21. The potential federal HAP emissions from this facility are less than the major source thresholds of 10 tons per year for an individual FHAP and 25 tons per year for the aggregate of all FHAPs. As such, the facility is considered an area source of FHAPs.

22. Under the Cleaner Air Oregon program, only existing sources that have been notified by LRAPA and new sources are required to perform risk assessments. This source has not been notified by LRAPA and is therefore, not yet required to perform a risk assessment or report annual emissions of toxic air contaminants. LRAPA required reporting of approximately 600 toxic air contaminants in 2016 and regulates approximately 260 toxic air contaminants that have Risk Based Concentrations established in rule. All FHAPs are on the list of approximately 600 toxic air contaminants. The FHAPs and toxic air contaminants listed below are based upon source testing and standard emission factors for the types of emission units at this facility. After the source is notified by LRAPA, they must update their inventory and perform a risk assessment to see if they must reduce risk from their toxic air contaminant emissions. Until then, sources will be required to report toxic air contaminant emissions triennially.

23. The following table lists the potential emissions of FHAPs from the facility. The facility also emits insignificant amounts of metals from the combustion of natural gas which are not represented below.

Pollutant	Potential Emissions (TPY)
Acetaldehyde	7.4E-03
Acrolein	2.3E-03
Benzene	2.6E-03
1,3-Butadiene	3.3E-04
Dichlorobenzene	6.5E-07
Formaldehyde	0.12
Hexane	9.8E-04
Methanol	1.5E-03
Methylene Chloride	2.1E-05
Naphthalene	1.9E-04
PAHs	4.0E-04
1,1,2,2-Tetrachloroethane	1.3E-05
Toluene	2.0E-02
Xylene	9.6E-03
Acetaldehyde	7.4E-03
Total Federal HAPs =	0.17

National Emission Standards for Hazardous Air Pollutants (NESHAPs)

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

24. The natural gas-fired 237 hp emergency generator CIA-1 was installed on November 2, 2010. Any RICE installed on or after June 12, 2006 is considered a new stationary RICE subject to the requirements under 40 CFR Part 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. Under 40 CFR 63.6590(c)(1), a new or reconstructed stationary RICE located at an area source of FHAPs must meet the requirements of 40 CFR 63 subpart ZZZZ by meeting the requirements of 40 CFR 60 subpart JJJJ. No further requirements apply for such engines under 40 CFR 63 subpart ZZZZ.

New Source Performance Standards (NSPSs)

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

25. Stationary gas turbines with a heat input at peak load equal to or greater than 10.7gigajoules (10 million Btu) per hour, based on the lower heating value of the fuel fired, for which construction, modification, or reconstruction commences after October 3, 1977 is subject to regulation under 40 CFR 60 Subpart GG. EU-2, the portable Solar Saturn T-1310 turbine, is rated at 13.7 MMBtu per hour with an initial in-service year of 1993. Although EU-2 is portable, the definition of “stationary gas turbine” in 40 CFR 60.331(a) includes a unit “mounted on a vehicle for portability”. Therefore, EU-2 is subject to 40 CFR 60 Subpart GG.
26. The 40 CFR 60 Subpart GG requirements that are applicable to EU-2 are identified in the following table:

40 CFR 60 Subpart GG Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
60.330	Applicability and designation of affected facility	Yes	EU-2 is rated at 13.7 MMBtu per hour.	NA
60.331	Definitions	Yes	EU-2 meets the definition of a <i>stationary gas turbine</i> .	NA
60.332	Standards for nitrogen oxides	Yes	Natural gas has an insignificant amount of fuel bound nitrogen.	18
60.333	Standards for sulfur dioxide	Yes	None.	21
60.334	Monitoring of operations	Yes	None.	22
60.335	Test methods and procedures	Yes	Initial testing requirement was satisfied.	NA

40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

27. Stationary gas turbines with a heat input at peak load equal to or greater than 10.7gigajoules (10 million Btu) per hour, based on the higher heating value of the fuel, for which construction, modification, or reconstruction commences after February 18, 2005 are subject to regulation under 40 CFR 60 Subpart KKKK. EU-1, the Solar Saturn T-1302 turbine, is rated at 15.9 MMBtu per hour and was modified in 2010, when the gas producer and power turbine portion of the stationary combustion turbine were replaced, resulting in an increase in hourly emissions regulated under this standard. Therefore, EU-1 is subject to 40 CFR 60 Subpart KKKK.
28. The 40 CFR 60 Subpart KKKK requirements that are applicable to EU-1 are identified in the following table:

40 CFR 60 Subpart KKKK Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
60.4300	Purpose of this subpart	Yes	None.	NA
60.4305	Applicability	Yes	EU-1 is rated at 15.9 MMBtu per hour and was modified in 2010.	NA
60.4310	Exemptions	No	None.	NA
60.4315	Pollutants regulated	Yes	None.	NA
60.4320	Emission limits for nitrogen oxides (NO _x)	Yes	None.	11
60.4325	Emission limits for NO _x for combination fuels	No	None.	NA
60.4330	Emission limits for sulfur dioxide (SO ₂)	Yes	None.	12
60.4333	General requirements	Yes	None.	13
60.4335	NO _x compliance demonstration with water/steam injection	No	None.	NA
60.4340	NO _x compliance demonstration without water/steam injection	Yes.	None.	14
60.4345	CEMS requirements	No	None.	NA
60.4350	Using CEMS for excess emissions	No	None.	NA
60.4355	Parameter monitoring plan	No	None.	NA
60.4360	Determining total sulfur content of fuels	No	None.	NA
60.4365	Total sulfur content monitoring exemptions	Yes	None.	17
60.4370	Sulfur content determination frequency	No	None.	NA
60.4375	Reports	Yes	None.	16
60.4380	Excess emissions and monitor downtime for NO _x	No	None.	NA
60.4385	Excess emissions and monitoring downtime for SO ₂	No	None.	NA
60.4390	Reporting requirements for emergency or R&D turbines	No	None.	NA
60.4395	Reports	No	Related to CEMS or CMS.	NA
60.4400	Performance tests for NO _x	Yes	None.	15
60.4405	Performance tests for a NO _x CEMS	No	None.	NA
60.4410	Establishing valid parameter ranges	No	None.	NA

40 CFR 60 Subpart KKKK Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
60.4415	Performance tests for sulfur	Yes	None.	17
60.4420	Definitions	Yes	None.	NA

40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

29. This regulation applies to any stationary SI RICE that commence construction after July 12, 2006 based on various manufacture dates and engine power ratings. Natural gas-fired 237 hp emergency generator CIA-1 meets the definition of an *emergency stationary internal combustion engine* under 40 CFR 60.4248 and is a model year 2009 engine installed in 2010. This engine is not certified by the manufacturer to meet the emission standards under 40 CFR 60.4233(e). As required under 40 CFR 60.4243(b)(2)(i) and 40 CFR 60.4243(f), a performance test was conducted on the engine on April 5, 2011 which demonstrated compliance with the applicable emission standards. The facility is not required to conduct subsequent performance tests on this engine unless the engine is rebuilt or undergoes major repair or maintenance.

Emission Unit	Test Date	Results	Permit Limit
CIA-1	04/05/2011	19.84 ppm NOx @ 15% O ₂	160 ppm NOx @ 15% O ₂
CIA-1	04/05/2011	211.83 ppm CO @ 15% O ₂	540 ppm CO @ 15% O ₂
CIA-1	04/05/2011	2.95 ppm VOC @ 15% O ₂	86 ppm VOC @ 15% O ₂

30. Emergency stationary ICE may be operated for maintenance checks and readiness testing for a maximum of 100 hours per calendar year. The federal requirements also allow an emergency stationary ICE to operate for up to 50 of the 100 hours per year in non-emergency situations listed in the regulation. However, an emergency generator as defined in “Categorically Insignificant Activity” LRAPA Title 12, Category UU is not allowed to be used in this manner and this use has not been included the draft permit. There is no time limit on the use of emergency stationary ICE in emergency situations.
31. On May 1, 2015, the D.C. Courts of Appeals vacated the exemption provisions for emergency demand response in 40 CFR 63 Subpart ZZZZ, 40 CFR 60 Subpart IIII, and 40 CFR 60 Subpart JJJJ (*Delaware Dept. of Nat. Resources and Envntl. Control v. EPA*). The vacated provisions have not been included in the draft permit even though US EPA has not revised the applicable regulations at this time.
32. The 40 CFR 60 Subpart JJJJ requirements that are applicable to the natural gas-fired emergency generator CIA-1 are identified in the following table:

40 CFR 60 Subpart JJJJ Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
60.4230	Applicability	Yes	None.	NA
60.4231	Emission standards for manufacturers	No	Manufacturer requirements only.	NA

40 CFR 60 Subpart JJJJ Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
60.4232	Emission standard timeframes for manufacturers	No	Manufacturer requirements only.	NA
60.4233	Emission standards for owners/operators	Yes	The engine must comply with the applicable emission standards in Table 1 as required by 40 CFR 60.4233(e).	23
60.4234	Emission standard timeframes for owners/operators	Yes	None.	24
60.4235	Fuel requirements	No	Gasoline only.	NA
60.4236	Importing/installing deadlines	Yes	Deadlines have passed.	NA
60.4237	Monitoring requirements for emergency engines	No	None.	NA
60.4238	Compliance requirements ≤19 KW	No	Manufacturer requirements only.	NA
60.4239	Compliance requirements >19 KW using gasoline	No	Manufacturer requirements only.	NA
60.4240	Compliance requirements >19 KW for rich burn LPG	No	Manufacturer requirements only.	NA
60.4241	Compliance requirements for voluntary certification	No	Manufacturer requirements only.	NA
60.4242	Other requirements for manufacturers	No	Manufacturer requirements only.	NA
60.4243	Compliance requirements for owners/operators	Yes	Initial testing requirement was satisfied.	25, 26
60.4244	Test methods and procedures for owners/operators	Yes	Initial testing requirement was satisfied.	NA
60.4245	Notification, reporting, and recordkeeping for owners/operators	Yes	None.	27
60.4246	General provisions	Yes	None.	NA
60.4247	Mobile source provisions for manufacturers	No	Manufacturer requirements only.	NA
60.4248	Definitions	Yes	None.	NA

Compliance History

33. This facility is regularly inspected by LRAPA and occasionally by other regulatory agencies. The following table indicates the inspection history of this facility:

Type of Inspection	Date	Results
LRAPA - Full Compliance Evaluation	09/17/1997	In compliance
LRAPA - Full Compliance Evaluation	09/14/2000	In compliance
LRAPA - Informational Compliance Evaluation	12/18/2007	In compliance

34. There have been no enforcement actions taken against this facility by LRAPA.

Performance Testing

35. The permit does not include any requirement to conduct performance testing for emission factor verification purposes. NO_x performance testing is required for EU-1 in accordance with 40 CFR 60 Subpart KKKK. The facility is required to conduct NO_x performance testing annually unless the results of the most recent NO_x tests are less than or equal to 75% of the applicable NO_x emission limit – then the frequency of performance tests may be once every 2 years (no more than 26 calendar months following the previous performance test). The facility will provide LRAPA with the dates of the performance tests and source test plan 30 days prior to testing. The facility will provide LRAPA with copies of the performance test results within 30 days of receipt unless otherwise approved by LRAPA.

36. The following table contains the results of the NO_x compliance testing for EU-1 in accordance with NSPS Subpart KKKK since the turbine was modified in 2010:

Emission Unit	Test Date	NO _x Result	Permit Limit	Load
EU-1	04/05/2011	56.06 ppm @ 15% O ₂	150 ppm @ 15% O ₂	90.1%
EU-1	05/09/2013	53.16 ppm @ 15% O ₂	150 ppm @ 15% O ₂	96.2%
EU-1	05/05/2015	46.95 ppm @ 15% O ₂	150 ppm @ 15% O ₂	95.3%
EU-1	02/21/2017	46.23 ppm @ 15% O ₂	150 ppm @ 15% O ₂	92.0%
EU-1	04/18/2019	47.65 ppm @ 15% O ₂	150 ppm @ 15% O ₂	97.7%
EU-1	05/20/2021	53.44 ppm @ 15% O ₂	150 ppm @ 15% O ₂	100%

Recordkeeping Requirements

37. The facility is required to keep and maintain a record of the following information for a period of five (5) years, unless otherwise required by permit or regulation:

Activity	Units	Minimum Recording Frequency
PSEL Recordkeeping		
Hours of operation of EU-1 and EU-2	Hours	Monthly
Fuel use for EU-1, EU-2 and EU-3	Mscf	Monthly
NSPS GG Recordkeeping		
Documentation of performance tests related to EU-2	NA	Each occurrence
Documentation of maintenance performed on EU-2	NA	Each occurrence
Documentation of the maximum total sulfur content of the natural gas in a current, valid purchase contract, tariff sheet or transportation contract	NA	Annually
NSPS JJJJ Recordkeeping		
Records of all notifications, including supporting documentation	NA	Each occurrence
Maintenance conducted on CIA-1	NA	Each occurrence
Documentation that CIA-1 meets the emission standards	NA	Each occurrence

Activity	Units	Minimum Recording Frequency
The date and times of operation of CIA-1	Date, Hours of operation	Each occurrence
Reason for operation of CIA-1	NA	Each occurrence
The total amount of time that CIA-1 operates for non-emergencies	Hours	Monthly
The total amount of time that CIA-1 operates for emergencies	Hours	Monthly
NSPS KKKK Recordkeeping		
Documentation of the maximum total sulfur content of the natural gas in a current, valid purchase contract, tariff sheet or transportation contract	NA	Annually
Documentation related to NOx performance tests performed annually or biennially	NA	Each performance test
Documentation related to SO ₂ performance tests performed annually	NA	Current documentation

Reporting Requirements

38. The facility must submit to LRAPA the following reports by the dates indicated in the table below:

Report	Reporting Period	Due Date
The excess emission log information, if required	Annual	March 15
Annual emissions, including the supporting process parameter and emission factor information	Annual	March 15

39. The facility is required to submit an annual report to LRAPA by March 15th of each year this permit is in effect. The annual compliance report must include emissions calculations, recordkeeping requirements, and any entries in the upset log as required by permit Condition G15

Public Notice

40. Insert after public notice.

JJW/cmw
 07/13/2021

Northwest Pipeline LLC - Eugene Compressor Station						
Permit No. 205811						
Criteria Pollutants						
Source Info	Pollutant	Emission Factor	Reference	Potential Emission Rates		
EU-1: Solar Saturn T-1302 Turbine (station)						
Size: 1,340 hp	NOx	2.79 lbs/hr	Emissions Test, see Note 1	2.79 lbs/hr	12.22	TPY
Hours: 8,760 hrs	CO	1.52 lbs/hr	Emissions Test, see Note 1	1.52 lbs/hr	6.66	TPY
Fuel Use: 16.9 Mscf/hr	VOC	2.14 lbs/MMscf	AP-42 Table 3.1-2a	0.04 lbs/hr	1.6E-01	TPY
	SO2	3.26 lbs/MMscf	AP-42 Table 3.1-2a, see Note 3	0.06 lbs/hr	2.4E-01	TPY
	PM10/PM2.5	6.73 lbs/MMscf	AP-42 Table 3.1-2a, see Note 4	0.11 lbs/hr	5.0E-01	TPY
	GHGs	120,142 lbs/MMscf	40 CFR 98, Tables C-1, C-2	2,030 lbs/hr	8,893	TPY
EU-2: Solar Saturn T-1310 Turbine (portable)						
Size: 1,300 hp	NOx	1.86 lbs/hr	Emissions Test, see Note 2	1.86 lbs/hr	8.15	TPY
Hours: 8,760 hrs	CO	3.07 lbs/hr	Emissions Test, see Note 2	3.07 lbs/hr	13.45	TPY
Fuel Use: 16.5 Mscf/hr	VOC	2.14 lbs/MMscf	AP-42 Table 3.1-2a	0.04 lbs/hr	1.5E-01	TPY
	SO2	3.26 lbs/MMscf	AP-42 Table 3.1-2a, see Note 3	0.05 lbs/hr	2.4E-01	TPY
	PM10/PM2.5	6.73 lbs/MMscf	AP-42 Table 3.1-2a, see Note 4	0.11 lbs/hr	4.9E-01	TPY
	GHGs	120,142 lbs/MMscf	40 CFR 98, Tables C-1, C-2	1,982 lbs/hr	8,683	TPY
CIA-1: Emergency Generator						
Size: 237 hp	NOx	2285 lbs/MMscf	AP42 Table 3.2-3, see Note 6	4.51 lbs/hr	1.13	TPY
Hours: 500 hrs	CO	3687 lbs/MMscf	AP42 Table 3.2-3, see Note 6	7.28 lbs/hr	1.82	TPY
Fuel Use: 1.98 Mscf/hr	VOC	30.19 lbs/MMscf	AP42 Table 3.2-3	0.06 lbs/hr	1.5E-02	TPY
	SO2	6.00 lbs/MMscf	AP42 Table 3.2-3	0.01 lbs/hr	3.0E-03	TPY
	PM10/PM2.5	19.8 lbs/MMscf	AP42 Table 3.2-3	0.04 lbs/hr	9.8E-03	TPY
	GHGs	120,142 lbs/MMscf	40 CFR 98, Tables C-1, C-2	237 lbs/hr	59	TPY
CIA-2: Process Heater						
Size: 0.125 MMBtu/hr	NOx	100 lbs/MMscf	AP42 Table 1.4-1	0.01 lbs/hr	5.4E-02	TPY
Hours: 8,760 hrs	CO	84 lbs/MMscf	AP42 Table 1.4-1	0.01 lbs/hr	4.5E-02	TPY
Fuel Use: 0.12 Mscf/hr	VOC	5.5 lbs/MMscf	AP42 Table 1.4-2	0.00 lbs/hr	3.0E-03	TPY
	SO2	6.00 lbs/MMscf	AP42 Table 1.4-2	0.00 lbs/hr	3.2E-03	TPY
	PM10/PM2.5	7.6 lbs/MMscf	AP42 Table 1.4-2	0.00 lbs/hr	4.1E-03	TPY
	GHGs	120,142 lbs/MMscf	40 CFR 98, Tables C-1, C-2	15 lbs/hr	64	TPY
EU-3: Blow Down Stack						
Size: 15 Mscf/hr	NOx	100 lbs/MMscf	AP42 Table 1.4-1	1.50 lbs/hr	1.5E-01	TPY
Hours: 200 hrs	CO	84 lbs/MMscf	AP42 Table 1.4-1	1.26 lbs/hr	1.3E-01	TPY
Fuel Use: 15 Mscf/hr	VOC	5.5 lbs/MMscf	AP42 Table 1.4-2	0.08 lbs/hr	8.3E-03	TPY
	SO2	6.00 lbs/MMscf	AP42 Table 1.4-2	0.09 lbs/hr	9.0E-03	TPY
	PM10/PM2.5	7.6 lbs/MMscf	AP42 Table 1.4-2	0.11 lbs/hr	1.1E-02	TPY
	GHGs	120,142 lbs/MMscf	40 CFR 98, Tables C-1, C-2	1,802 lbs/hr	180	TPY
FACILITY TOTALS						
	NOx			10.68 lbs/hr	21.70	TPY
	CO			13.14 lbs/hr	22.10	TPY
	VOC			0.21 lbs/hr	3.4E-01	TPY
	SO2			0.21 lbs/hr	4.9E-01	TPY
	PM10/PM2.5			0.38 lbs/hr	1.01	TPY
	GHGs			6,067 lbs/hr	17,880	TPY

Notes:

1. NOx emission factors were calculated using the average of three source tests conducted on EU-1 in 2021, 2019, and 2015. CO emission factors were calculated using the average of eight source tests conducted on Solar Saturn T-1302 turbines, in various geographical locations, between the years of 1995 to 2015. The CO emission factor information was provided to LRAPA by the source in a Notice of Intent to construct in 2010 and in a source test report in 2015.
2. NOx and CO emission factors for portable turbine were estimated using the average of the source test results from testing in 2004 & 2005 at the Oregon City Compressor Station.
3. SO2 emissions based on referenced AP-42 emission factor equation 0.94S lb/MMBtu (where "S" is the sulfur percentage in the natural gas) and with average total sulfur content in natural gas of 2 grains/100 scf or 34 ppm (0.0034%).
4. All particulate matter is assumed to be less than 2.5 microns in diameter, so PM10 emissions equal PM2.5 emissions.
5. Fuel use on generator estimated assuming an average fuel use of 8,500 Btu/hp-hr and fuel HHV of 1,020 Btu/scf.
6. Calculated the average NOx and CO emission factors from AP-42 4-stroke rich burn engine.
7. AP-42 emission factors converted from lb/MMBtu to lb/MMscf assuming a HHV of 1020 Btu/scf. GHG conversion assumes 1026 Btu/scf.

Federal Hazardous Air Pollutants								
Source Info		Pollutant	Emission Factor		Reference	Potential Emissions		
EU-1: Solar Saturn T-1302 Turbine (stationary)			Acetaldehyde	4.0E-05	lb/MMBtu	AP42 Table 3.1-3	3.0E-03	TPY
Size:	1,340 hp		Acrolein	6.4E-06	lb/MMBtu	AP42 Table 3.1-3	4.8E-04	TPY
Hours:	8,760 hrs		Benzene	1.2E-05	lb/MMBtu	AP42 Table 3.1-3	9.1E-04	TPY
Fuel Use:	148.0 MMscf/yr		Ethylbenzene	3.2E-05	lb/MMBtu	AP42 Table 3.1-3	2.4E-03	TPY
	151,005 MMBtu/yr		Formaldehyde	7.1E-04	lb/MMBtu	AP42 Table 3.1-3	5.4E-02	TPY
			Naphthalene	1.3E-06	lb/MMBtu	AP42 Table 3.1-3	9.8E-05	TPY
			PAHs	2.2E-06	lb/MMBtu	AP42 Table 3.1-3	1.7E-04	TPY
			Toluene	1.3E-04	lb/MMBtu	AP42 Table 3.1-3	9.8E-03	TPY
			Xylene	6.4E-05	lb/MMBtu	AP42 Table 3.1-3	4.8E-03	TPY
EU-2: Solar Saturn T-1310 Turbine (portable)			Acetaldehyde	4.0E-05	lb/MMBtu	AP42 Table 3.1-3	2.9E-03	TPY
Size:	1,300 hp		Acrolein	6.4E-06	lb/MMBtu	AP42 Table 3.1-3	4.7E-04	TPY
Hours:	8,760 hrs		Benzene	1.2E-05	lb/MMBtu	AP42 Table 3.1-3	8.8E-04	TPY
Fuel Use:	144.5 MMscf/yr		Ethylbenzene	3.2E-05	lb/MMBtu	AP42 Table 3.1-3	2.4E-03	TPY
	147,431 MMBtu/yr		Formaldehyde	7.1E-04	lb/MMBtu	AP42 Table 3.1-3	5.2E-02	TPY
			Naphthalene	1.3E-06	lb/MMBtu	AP42 Table 3.1-3	9.6E-05	TPY
			PAHs	2.2E-06	lb/MMBtu	AP42 Table 3.1-3	1.6E-04	TPY
			Toluene	1.3E-04	lb/MMBtu	AP42 Table 3.1-3	9.6E-03	TPY
			Xylene	6.4E-05	lb/MMBtu	AP42 Table 3.1-3	4.7E-03	TPY
CIA-1: Emergency Generator			Acetaldehyde	2.79E-03	lb/MMBtu	AP42 Table 3.2-3	1.4E-03	TPY
Size:	237 hp		Acrolein	2.63E-03	lb/MMBtu	AP42 Table 3.2-3	1.3E-03	TPY
Hours:	500 hrs		Benzene	1.58E-03	lb/MMBtu	AP42 Table 3.2-3	8.0E-04	TPY
Fuel Use:	0.99 MMscf/yr		1,3-Butadiene	6.63E-04	lb/MMBtu	AP42 Table 3.2-3	3.3E-04	TPY
	1,007 MMBtu/yr		Formaldehyde	2.05E-02	lb/MMBtu	AP42 Table 3.2-3	1.0E-02	TPY
			Methanol	3.06E-03	lb/MMBtu	AP42 Table 3.2-3	1.5E-03	TPY
			Methylene Chloride	4.12E-05	lb/MMBtu	AP42 Table 3.2-3	2.1E-05	TPY
			PAHs	1.41E-04	lb/MMBtu	AP42 Table 3.2-3	7.1E-05	TPY
			1,1,2,2-Tetrachloroethane	2.53E-05	lb/MMBtu	AP42 Table 3.2-3	1.3E-05	TPY
			Toluene	5.58E-04	lb/MMBtu	AP42 Table 3.2-3	2.8E-04	TPY
			Xylene	1.95E-04	lb/MMBtu	AP42 Table 3.2-3	9.8E-05	TPY
CIA-2: Process Heater			Benzene	2.1E-03	lbs/MMscf	AP42 Table 1.4-3	1.1E-06	TPY
Size:	0.125 MMBtu/hr		Dichlorobenzene	1.2E-03	lbs/MMscf	AP42 Table 1.4-3	6.4E-07	TPY
Hours:	8,760 hrs		Formaldehyde	7.5E-02	lbs/MMscf	AP42 Table 1.4-3	4.0E-05	TPY
Fuel Use:	1.07 MMscf/yr		Hexane	1.8E+00	lbs/MMscf	AP42 Table 1.4-3	9.7E-04	TPY
	1,095 MMBtu/yr		Naphthalene	6.1E-04	lbs/MMscf	AP42 Table 1.4-3	3.3E-07	TPY
			PAHs	5.2E-05	lbs/MMscf	AP42 Table 1.4-3	2.8E-08	TPY
			Toluene	3.4E-03	lbs/MMscf	AP42 Table 1.4-3	1.8E-06	TPY
EU-3: Blow Down Stack			Benzene	2.1E-03	lbs/MMscf	AP42 Table 1.4-3	1.6E-08	TPY
Size:	15 Mscf/hr		Dichlorobenzene	1.2E-03	lbs/MMscf	AP42 Table 1.4-3	9.0E-09	TPY
Hours:	NA hrs		Formaldehyde	7.5E-02	lbs/MMscf	AP42 Table 1.4-3	5.6E-07	TPY
Fuel Use:	0.02 MMscf/yr		Hexane	1.8E+00	lbs/MMscf	AP42 Table 1.4-3	1.4E-05	TPY
	15 MMBtu/yr		Naphthalene	6.1E-04	lbs/MMscf	AP42 Table 1.4-3	4.6E-09	TPY
			PAHs	5.2E-05	lbs/MMscf	AP42 Table 1.4-3	3.9E-10	TPY
			Toluene	3.4E-03	lbs/MMscf	AP42 Table 1.4-3	2.6E-08	TPY
FACILITY TOTALS			Acetaldehyde				7.4E-03	TPY
			Acrolein				2.3E-03	TPY
			Benzene				2.6E-03	TPY
			1,3-Butadiene				3.3E-04	TPY
			Dichlorobenzene				6.5E-07	TPY
			Formaldehyde				0.12	TPY
			Hexane				9.8E-04	TPY
			Methanol				1.5E-03	TPY
			Methylene Chloride				2.1E-05	TPY
			Naphthalene				1.9E-04	TPY
			PAHs				4.0E-04	TPY
			1,1,2,2-Tetrachloroethane				1.3E-05	TPY
			Toluene				2.0E-02	TPY
			Xylene				9.6E-03	TPY
			Total Federal HAPs				0.17	TPY

Notes:

Does not include insignificant emissions of metals from natural gas combustion
 Does not include emissions of HAPs which were not emitted above the detection limit