Construction Permit Application

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Cheyenne Prairie Generating Station Expansion Project
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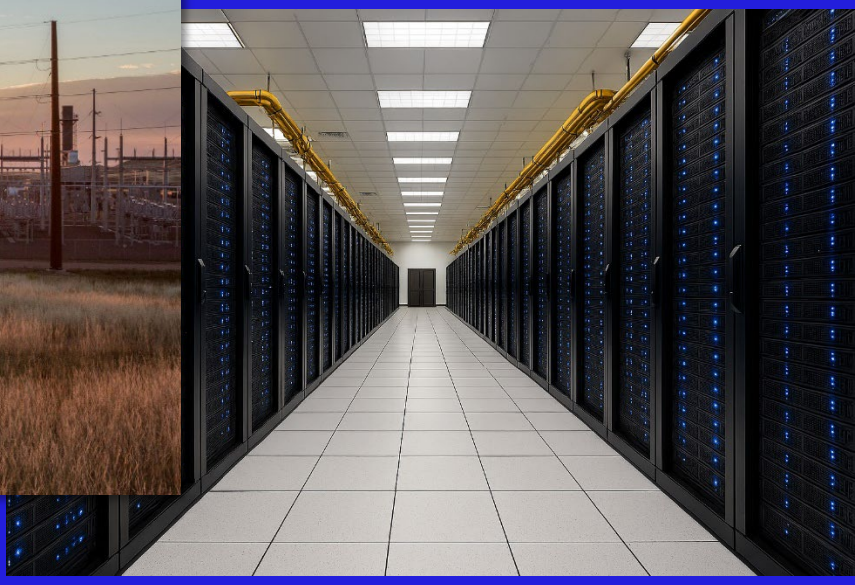

Construction Permit Application

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Acronyms and Abbreviations

Acronym	Description
°F	degree(s) Fahrenheit
µg/m³	microgram(s) per cubic meter
AQD	Air Quality Division
ARPP	Accidental Release Prevention Program
BACT	best available control technology
Black Hills	Cheyenne Light, Fuel & Power Company, and Black Hills Power, Inc. d/b/a Black Hills Energy
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CatOx	catalytic oxidation
CCCT	combined cycle combustion turbine
CCS	carbon capture and storage
CEMS	continuous emissions monitoring system
CFR	*Code of Federal Regulations*
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPGS	Cheyenne Prairie Generating Station
CTG	combustion turbine generator
DEQ	Wyoming Department of Environmental Quality
DLE	dry low emissions
DLN	dry low NOx
EOR	enhanced oil recovery
EPA	U.S. Environmental Protection Agency
FGR	Flue Gas Recirculation
FR	*Federal Register*
g	grams
GCOP	Good Combustion and Operating Practices
GE	GE Vernova
GHG	greenhouse gas
HAP	hazardous air pollutant
HHV	higher heating value
hp	horsepower

Acronym	Description
LAER	Lowest Achievable Emission Rate
lb/hr	pound(s) per hour
LNB	low NO_X burner
MACT	maximum achievable control technology
mg/m^3	milligram(s) per cubic meter
MMBtu/hour	million British thermal units per hour
MW	megawatt(s)
MWh	megawatt-hour(s)
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NH_3	ammonia
NO_X	nitrogen oxide
NSCR	non-selective catalytic reduction
NSPS	New Source Performance Standards
NSR	New Source Review
O&M	operation and maintenance
O_2	oxygen
PM	particulate matter
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in aerodynamic diameter
ppm	part(s) per million
ppmvd	part(s) per million by volume, dry
ppmvd @15%O_2	part(s) per million by volume, dry corrected to 15 percent oxygen
Project	Cheyenne Prairie Generating Station Expansion
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LAER Clearinghouse
RICE	reciprocating internal combustion engine
RMP	Risk Management Plan
SCCT	simple cycle combustion turbine
SCR	selective catalytic reduction
SER	significant emission rate
SF_6	sulfur hexafluoride
SIP	State Implementation Plan

Acronym	Description
SNCR	selective non-catalytic reduction
SO_2	sulfur dioxide
SPRINT	SPRay INTercooling
SSM	startup, shutdown, and malfunction
SUSD	startup/shutdown
tpy	ton(s) per year
VOC	volatile organic compound
WAAQS	Wyoming Ambient Air Quality Standards

1. Introduction

Cheyenne Light, Fuel & Power Company, and Black Hills Power, Inc. d/b/a Black Hills Energy (collectively referred to as Black Hills for the remainder of this permit application) are owner and operator of the Cheyenne Prairie Generating Station (CPGS).

Black Hills is submitting this *Prevention of Significant Deterioration* (PSD) permit application for an expansion of CPGS. Located in Laramie County, Wyoming, the proposed expansion involves the addition of combustion turbines, reciprocating internal combustion engines (RICEs), and balance of plant equipment (project), which is expected to increase emissions exceeding the PSD significance levels.

Specifically, to meet the anticipated demands for the Cheyenne area, Black Hills proposes to construct up to three GE LM6000 PF simple cycle natural gas turbines, up to three inlet air heaters, up to 24 Wärtsilä 18V50SG (natural gas) RICE, one emergency fire pump RICE, and supporting auxiliary systems at the CPGS facility.

The combustion turbines and the engines will be equipped with state-of-the-art controls to minimize emissions. Dry low emission (DLE) combustors and a selective catalytic reduction (SCR) system will control nitrogen oxide (NOx) emissions from the combustion turbines. A catalytic oxidation (CatOx) system will control carbon monoxide (CO) and volatile organic compound (VOC) emissions. Good combustion practices and burning pipeline-quality natural gas will minimize emissions of the remaining pollutants from the turbines.

The Wärtsilä engines will meet the emission standards as outlined in *Code of Federal Regulations* Title 40, Part 60 Subpart JJJJ (40 CFR Part 60 Subpart JJJJ) (New Source Performance Standards) for nonemergency spark ignited natural gas engines greater than 500 horsepower (hp) manufactured after July 1, 2010.

This application has been prepared in accordance with Wyoming Department of Environmental Quality (DEQ) Air Quality Division (AQD) Standards and Regulations Chapter 6, Section 4, including best available control technology (BACT) requirements and comply with the national ambient air quality standards (NAAQS). In accordance with DEQ-AQD Chapter 6, Section 2, the project will also comply with modeling impact requirements at the nearby Colorado state line.

1.1 Project Contacts

The following individuals are designated points of contact for this permit application:

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1.2 Document Overview

- **Section 1 – Introduction.** This section provides an overview of the Project and describes the application organization.
- **Section 2 – Project Description.** This section includes a general description of the proposed Project, including equipment and operation of the Project.
- **Section 3 – Emissions Summary.** This section provides a summary of emissions-related information for the proposed Project and the facility overall.
- **Section 4 – Regulatory Review.** This section contains a detailed regulatory review of state and federal air regulations that may impact the permitting, construction, or operation of the proposed Project.
- **Section 5 – Criteria Pollutant BACT Analysis.** This section includes a BACT analysis for criteria pollutants utilizing the U.S. Environmental Protection Agency (EPA)-prescribed top-down approach.
- **Section 6 – Greenhouse Gas BACT Analysis.** This section includes a BACT analysis for greenhouse gas (GHG) using the EPA-prescribed top-down approach.
- **Section 7 – Requested Permit Conditions and Limits.** This section includes requested permit conditions and limits for the proposed simple cycle turbines and associated auxiliary equipment.
- **Section 8 – Air Quality Impact Analysis.** This section provides an overview of the modeling analysis conducted to support the project. A detailed report, Air Quality Impact Analysis for Cheyenne Light, Fuel and Power CPGS, was submitted separately.
- **Section 9 – References.**
- **Appendix A – Wyoming Application Forms.** This appendix includes the state-required application and emission source forms.
- **Appendix B – Location Map and Plot Plan.** This appendix includes a location map and the general equipment arrangement drawing for the proposed project.
- **Appendix C – Emissions Calculations.** This appendix contains the calculations used to determine the criteria, GHG and hazardous air pollutant (HAP) emissions for this project as well as supporting documentation.
- **Appendix D – Reasonably Available Control Technology (RACT)/BACT/LEAR Clearinghouse (RBLC) Search.** This appendix includes documentation for the BACT determination with searches of the RBLC database and cost analyses.
- **Appendix E – Zoning Certification.** This appendix provides the zoning certification letter for the facility.
- **Appendix F – Process Flow Diagrams**. This appendix includes simple process flow diagrams for the Wärtsiläs and combustion turbines.
- **Appendix G – Acid Rain Permit Application**. This appendix includes the acid rain permit application for the 3 new combustion turbines.

1.3 Permitting History

Black Hills submitted PSD and GHG air construction applications for the CPGS in 2011. The permitted facility included five LM6000 natural gas-fired combustion turbines, two in combined cycle mode and three in simple cycle mode, along with associated auxiliary equipment. The non-GHG PSD permit was issued from DEQ, AQD on August 28, 2012. The GHG PSD permit was issued from EPA Region 8 on September 27, 2012. The facility began construction shortly thereafter on three of the combustion turbines units (two in combined cycle and one simple cycle). In April 2014, Black Hills submitted a construction application amendment to add a 25 million British thermal units per hour (MMBtu/hour) auxiliary boiler to the permitted sources. DEQ issued the revised permit on June 16, 2014. The first three combustion turbines began commercial operation on October 1, 2014.

Two of the permitted simple cycle turbines were not installed with the initial construction. In 2015, Black Hills submitted a permit amendment application to convert the two proposed, but not yet installed, simple cycle turbines to combined cycle. This also resulted in some changes to the associated auxiliary equipment such as inlet heaters, cooling towers and auxiliary boilers. DEQ issued a final construction permit on October 27, 2015. No revisions were required to the 2012 GHG permit. The construction of the combined cycle turbines and associated equipment was not initiated. Black Hill submitted a PSD application for facility upgrades to the CPGS in 2020 which included two turbines in combined cycle configuration as well as installation of associated equipment. The construction permit for the project was issued on January 18, 2022. The construction of the two combined cycle turbines and associated equipment was not initiated and the authorization to construct the turbines expired in January 2025. No additional equipment subject to air quality permitting requirements is currently authorized. Approval of this proposed project will allow CPGS to expand to meet the energy demands of the Cheyenne area..

2. Project Description

Black Hills proposes installing three GE Vernova (GE) LM6000 PF simple cycle combustion turbine generators (CTGs), each with a nominal generating capacity of 40 megawatts (MW). Each CTG will be equipped with its own dedicated inlet air heater. Actual output may vary above or below the nominal rating depending on weather and operating conditions. The turbines are capable of firing on natural gas and a blend of natural gas and hydrogen fuels.

In addition to the CTGs, Black Hills plans to install 24 Wärtsilä 18V50SG RICE, each rated at 18 MW. Each engine can fire on natural gas, hydrogen, or ammonia fuels. **Appendix B** provides a facility location map and general arrangement drawing.

Construction of the proposed units would be staggered with construction anticipated to start in the second half of 2026. The three GE turbines are scheduled for construction first, followed by the first two Wärtsiläs blocks, each block containing six engines, and finally the last two Wärtsiläs blocks. The turbines are expected to be operational in 2027, Wärtsilä block 1 and 2 to be operational in 2028, and Wärtsilä block 3 and 4 to be operational in 2029.

2.1 Power Generation

After completion of this project, the facility would have six LM6000 combustion turbines in operation with two operating in combined cycle mode and four in simple cycle mode, and twenty-four (24) RICE. Total nominal plant capacity will be 692 MW.

2.2 Emission Sources

This section outlines emission sources associated with the project.

2.2.1 Simple Cycle Combustion Turbine Generators

The proposed three combustion turbines will be fired exclusively with pipeline quality natural gas.

Each combustion turbine consists of a compressor, combustor, and expansion turbine. After filtration, air passes through the compressor before combining with the fuel and entering the low NO_X combustor. The combustion products and compressed air pass through the expansion turbine, which drives both the compressor and the generator. The exhaust gas from each CTG enters the SCR and CatOx control systems at high temperatures.

The combustion turbines will have the following emission controls:

- NO_X: Dry low NO_X (DLN) burners and an SCR system to reduce NO_X emissions on all CTGs
- CO and VOC: An oxidation catalyst to reduce CO and VOC emissions on all CTGs
- Particulate Matter (TSP, PM_{10}, and $PM_{2.5}$): Good combustion design and operation; and use of pipeline-quality natural gas to reduce particulate matter emissions from the CTGs
- Sulfur Dioxide (SO_2): Use of pipeline quality natural gas to minimize SO_2 emissions from the CTGs

During steady state operations, the combustion turbines are proposed to meet the following emission standards:

- NO_X: BACT rate of 5 parts per million by volume, dry corrected to 15 percent oxygen (ppmvd @ 15%O_2)
- CO: 6 ppmvd @ 15%O_2
- VOC: 3 ppmvd @ 15%O_2
- PM/particulate matter less than 10 or 2.5 micrometers in aerodynamic diameter (PM_{10}/$PM_{2.5}$): 4.0 pounds per hour (lb/hr)
- SO_2: 0.48 lb/hr

2.2.2 Wärtsilä Engines

The 24 Wärtsilä Model 18V50SG RICE will be fired with pipeline quality natural gas.

Each engine consists of a turbocharger, combustion chamber, and power cylinder. The exhaust gas from each engine will pass through an SCR system and a CatOx control system at high temperatures.

The Wärtsilä engines will have the following emission controls:

- NO_X: an SCR system to reduce NO_X emissions on all Wärtsiläs
- CO and VOC: An oxidation catalyst to reduce CO and VOC emissions on all Wärtsiläs
- Particulate Matter (TSP, PM_{10}, and $PM_{2.5}$): Good combustion design and operation; and use of pipeline-quality natural gas to reduce particulate matter emissions from the Wärtsiläs
- SO_2: Use of pipeline quality natural gas to minimize SO_2 emissions from the Wärtsiläs

During steady state operations, the Wärtsilä engines are proposed to meet the following emission standards:

- NO_X: 0.04 g/hp-hr
- CO: 0.11 g/hp-hr
- VOC: 0.15 g/-hp-hr
- PM/PM10/PM2.5: 3.6 lb/hr
- SO_2: 0.1 lb/hr

2.2.3 Inlet Heater

An inlet air heating system will be installed at the compressor inlet of each CTG, upstream of the inlet air filter. The inlet air heating system raises the temperature of the ambient air entering the CTGs during periods of low air temperature to prevent icing and will bring the inlet temperatures within a specific range to ensure vendor's emission guarantees. Three additional inlet air heaters will be installed at CPGS similar to those already permitted and installed.

The inlet heaters will have the following emission controls:

- NO_X: Low NO_X burner (LNB) to reduce NO_X emissions
- CO and VOC: Good combustion practices to reduce CO and VOC emissions
- PM and SO_2: Good combustion and clean fuel

The inlet heaters are proposed to meet the following emission standards:

- NO_x: 0.012 lb/MMBtu
- CO: 0.037 lb/MMBtu
- VOC: 0.09 lb/hr
- PM/PM10/PM2.5: 0.12 lb/hr
- SO_2: 0.01 lb/hr

2.2.4 Fire Pump

A diesel-fired emergency fire pump will be installed as a part of the project.

The fire pump will have the following emission controls:

- NO_X, CO, VOC, and PM: Tier 3 certified unit
- SO_2: Good combustion and clean fuel

The fire pump is proposed to meet the following emission standards:

- NMHC + NO_x: 3.0 g/hp-hr
- CO: 2.6 g/hp-hr
- PM/PM10/PM2.5: 0.15 g/hp-hr
- SO_2: 0.82 lb/hr

2.2.5 Balance of Plant Equipment

The project will also include various small heating, ventilation, and air conditioning (HVAC) equipment, several SF_6 circuit breakers, and SCR ammonia injection systems with electric blowers and vaporizer.

HVAC equipment is exempt according to DEQ-AQD Chapter 6, Section 2(k)(ii), but emissions were estimated and included in project totals to ensure accuracy and completeness. Emissions from the SF_6 circuit breakers are fugitive emissions resulting from leaks. SF_6 circuit breakers emissions were based on total SF_6 material to be stored and the proposed annual maximum leak rate consistent with BACT for similar sources.

2.3 Emissions Monitoring

As required by 40 CFR 60 and 75, the CPGS will use a continuous emissions monitoring system (CEMS) for NO_X, CO, and oxygen (O_2) for the three new CTGs. These CEMS will record data on frequencies consistent with state and federal rules. The plant will monitor and record the natural gas flow rate and will analyze natural gas fuel quality as required by 40 CFR Part 75 Appendix D.

The Wärtsiläs will be monitored via continuous parametric monitoring of control device parameters, including temperature and pressure drop across the SCR and oxidation catalyst to monitor and maintain operating conditions for efficient pollution control.

Continuous monitoring will not be needed for either the inlet air heaters or the fire pump due to their sizing and purpose.

2.4 Operating Schedule

The permit limits requested in this application, and the resulting assumptions used in the emissions inventory and BACT analysis, are as follows:

- Up to 8,760 hours per turbine per year of CTG operation at 100 percent load
- Up to 600 startups and shutdowns for the simple cycle combustion turbines per year
- Up to 8,760 hours per Wärtsilä per year at 100 percent load
- Up to 1,000 startups and shutdowns for each Wärtsilä per year
- Up to 4,380 hours per year for each inlet air heater
- Up to 100 hours per year for fire pump nonemergency operation

3. Emissions Summary

Emission estimates were prepared for existing and proposed emissions sources from the CPGS, including the combustion turbines, Wärtsilä engines, and auxiliary equipment. The annual emissions were estimated based on 100 percent capacity factor (full load operation for 8,760 hours per year) for each of the combustion turbines and Wärtsilä engines. **Appendix C** provides detailed emission calculations.

Table 3-1 shows the air emission sources and regulated air pollutants for the proposed Project.

Table 3-1. Air Emission Sources and Regulated Air Pollutants

Source Number*	Emission Point	Regulated Air Pollutants
2CTG-TRB-2001 3CTG-TRB-1001 3CTG-TRB-2001	Three GE LM6000 PF SPRINT Simple Cycle Combustion Turbines	NO_X, CO, SO_2, PM, PM_{10}, $PM_{2.5}$, VOC, HAP, GHG
2CTG-IAH-2001 3CTG-IAH-1001 3CTG-IAH-2001	Three Inlet Air Heaters	NO_X, CO, SO_2, PM, PM_{10}, $PM_{2.5}$, VOC, HAP, GHG
4REB-ENG-1000 4REB-ENG-2000 4REB-ENG-3000 4REB-ENG-4000 4REB-ENG-5000 4REB-ENG-6000 5REB-ENG-1000 5REB-ENG-2000 5REB-ENG-3000 5REB-ENG-4000 5REB-ENG-5000 5REB-ENG-6000 6REB-ENG-1000 6REB-ENG-2000 6REB-ENG-3000 6REB-ENG-4000 6REB-ENG-5000 6REB-ENG-6000 7REB-ENG-1000 7REB-ENG-2000 7REB-ENG-3000 7REB-ENG-4000 7REB-ENG-5000	Twenty-four Wärtsilä 18V50SG RICE	NO_X, CO, SO_2, PM, PM_{10}, $PM_{2.5}$, VOC, HAP, GHG

Source Number*	Emission Point	Regulated Air Pollutants
7REB-ENG-6000		
CFPA-ENG-0002	Fire Pump	NO_X, CO, SO_2, PM, PM_{10}, $PM_{2.5}$, VOC, HAP, GHG

* Last 3 digits omitted from IMPACT due to IMPACT character limitation.

3.1 LM6000 PF Simple Cycle Combustion Turbines

Table 3-2 outlines the estimated hourly and annual controlled emission rates of criteria pollutants, and **Table 3-3** outlines the HAPs from the three LM6000 simple cycle combustion turbines. The hourly emissions are estimated at 100 percent load normal operation conditions, and the annual emissions are estimated at 100 percent load operation for the entire year with both normal operation and startup/shutdown included.

Table 3-2. LM6000 PF Simple Cycle Combustion Turbine Criteria Pollutant Emissions (per turbine)

Pollutant	Steady State Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
NO_X	4.60	22.91	Engineering Estimates[b]
CO	5.60	32.95	Engineering Estimates[b]
SO_2	0.48	2.10	Engineering Estimates[b]
PM_{10}	4.00	17.52	Engineering Estimates[b]
$PM_{2.5}$	4.00	17.52	Engineering Estimates[b]
VOC	3.00	14.01	Engineering Estimates[b]
GHG as CO_2e	42,801	187,469	40 CFR 98

[a] Annual emissions include 8,460 hours of normal operation and 300 hours of startup/shutdown.
[b] Emission estimates based on site-specific turbine performance information from GE and Jacobs.
CO_2e = carbon dioxide equivalent

Table 3-3. LM6000 PF Simple Cycle Combustion Turbine HAP Emissions (per turbine)

Pollutant	Steady State Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
1,3-Butadiene	7.86E-05	3.44E-04	AP-42 Table 3.1-3
Acetaldehyde	0.007	0.032	AP-42 Table 3.1-3
Acrolein	0.001	0.005	AP-42 Table 3.1-3
Benzene	1.66E-04	0.001	AP-42 Table 3.1-3
Ethylbenzene	0.006	0.026	AP-42 Table 3.1-3
Formaldehyde	0.004	0.016	AP-42 Table 3.1-3
Naphthalene	2.38E-04	0.001	AP-42 Table 3.1-3

Pollutant	Steady State Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
PAH	4.02E-04	0.002	AP-42 Table 3.1-3
Propylene Oxide	0.005	0.023	AP-42 Table 3.1-3
Toluene	0.024	0.104	AP-42 Table 3.1-3
Xylenes	0.012	0.051	AP-42 Table 3.1-3
Total HAPs (per turbine)	**0.060**	**0.261**	

[a] Annual emissions include 8,760 hours of normal operation.

3.2 Wärtsilä 18V50SG Engines

Table 3-4 provides the estimated hourly and annual controlled emission rates of criteria pollutants, and **Table 3-5** outlines the HAPs from the 24 Wärtsilä engines. The hourly emissions are estimated at 100 percent load normal operation conditions, and the annual emissions are estimated at 100 percent load operation for the entire year with both normal operation and startup included.

Table 3-4. Wärtsilä 18V50SG Engine Criteria Pollutant Emissions (per engine)

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
NO_X	2.0	12.51	Manufacturer Emission Estimates[b]
CO	6.1	30.28	Manufacturer Emission Estimates[b]
SO_2	0.08	0.371	AP-42 Chapter 3.2
PM_{10}	3.6	16.49	Manufacturer Emission Estimates[b]
$PM_{2.5}$	3.6	16.49	Manufacturer Emission Estimates[b]
VOC	8.1	35.47	Manufacturer Emission Estimates[b]
GHG as CO_2e	16,768	69,253	40 CFR 98

[a] Annual emissions include 8,260 hours of normal operation and 500 hours of startup/shutdown.

[b] Wärtsilä engine emission factors based on emission guarantees provided by the manufacturer.

CO_2 = carbon dioxide

Table 3-5. Wärtsilä 18V50SG Engine HAP Emissions (per engine)

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
1,1,2,2-Tetrachloroethane	5.73E-04	2.51E-03	AP-42 Table 3.2-2
1,1,2-Trichloroethane	4.55E-04	1.99E-03	AP-42 Table 3.2-2
1,3-Butadiene	3.82E-03	0.02	AP-42 Table 3.2-2
1,3-Dichloropropene	3.78E-04	1.66E-03	AP-42 Table 3.2-2
2-Methylnaphthalene	4.75E-04	2.08E-03	AP-42 Table 3.2-2
2,2,4-Trimethylpentane	3.58E-03	0.02	AP-42 Table 3.2-2
Acenaphthene	1.79E-05	7.84E-05	AP-42 Table 3.2-2
Acenaphthylene	7.92E-05	3.47E-04	AP-42 Table 3.2-2
Acetaldehyde	0.12	0.52	AP-42 Table 3.2-2
Acrolein	0.07	0.32	AP-42 Table 3.2-2
Benzene	0.01	0.03	AP-42 Table 3.2-2
Benzo(b)fluoranthene	2.38E-06	1.04E-05	AP-42 Table 3.2-2
Benzo(a)pyrene	5.94E-06	2.60E-05	AP-42 Table 3.2-2
Benzo(g,h,i)perylene	5.93E-05	2.60E-05	AP-42 Table 3.2-2
Biphenyl	3.04E-03	0.01	AP-42 Table 3.2-2
Carbon Tetrachloride	5.26E-04	2.30E-03	AP-42 Table 3.2-2
Chlorobenzene	4.35E-04	1.91E-03	AP-42 Table 3.2-2
Chloroform	4.08E-04	1.79E-03	AP-42 Table 3.2-2
Chrysene	9.96E-06	4.35E-05	AP-42 Table 3.2-2
Ethylbenzene	5.96E-04	2.49E-03	AP-42 Table 3.2-2
Ethylene Dibromide	6.34E-04	2.78E-03	AP-42 Table 3.2-2
Fluoranthene	1.59E-05	6.59E-05	AP-42 Table 3.2-2
Fluorene	8.12E-05	3.56E-04	AP-42 Table 3.2-2
Formaldehyde	0.19	0.83	Manufacturer Emission Estimates[b]
Hexane	0.02	0.07	AP-42 Table 3.2-2
Methanol	0.04	0.16	AP-42 Table 3.2-2
Methylene Chloride	2.86E-04	1.25E-03	AP-42 Table 3.2-2
Naphthalene	1.07E-03	4.67E-03	AP-42 Table 3.2-2
PAH	3.85E-04	1.69E-03	AP-42 Table 3.2-2
Phenanthrene	1.49E-04	6.52E-04	AP-42 Table 3.2-2

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
Phenol	3.44E-04	1.51E-03	AP-42 Table 3.2-2
Pyrene	1.95E-05	8.52E-05	AP-42 Table 3.2-2
Styrene	3.38E-04	1.48E-03	AP-42 Table 3.2-2
Tetrachloroethane	3.55E-05	1.56E-04	AP-42 Table 3.2-2
Toluene	0.01	0.03	AP-42 Table 3.2-2
Vinyl Chloride	2.13E-04	9.35E-04	AP-42 Table 3.2-2
Xylene	2.63E-03	0.01	AP-42 Table 3.2-2
Total HAPs (per engine)	**0.47**	**2.05**	

[a] Annual emissions include 8,760 hours of normal operation.

[b] Emission factors based on manufacturer emissions estimate.

3.3 Inlet Heaters

Table 3-6 outlines the estimated hourly and annual emission rates of criteria pollutants, and **Table 3-7** outlines the HAPs from the three new natural gas-fired inlet heaters. The hourly emissions are based on a heat input rating of 16.07 MMBtu/hour and the annual emissions are based on 4,380 hours per year operation.

Table 3-6. Inlet Heater Criteria Pollutant Emissions (per heater)

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
NO_X	0.19	0.42	Manufacturer
CO	0.59	1.30	Manufacturer
SO_2	0.01	0.02	AP-42 Table 1.4-2
PM_{10}	0.12	0.26	AP-42 Table 1.4-2
$PM_{2.5}$	0.12	0.26	AP-42 Table 1.4-2
VOC	0.09	0.19	AP-42 Table 1.4-2
GHG as CO_2e	1,881	4,120	40 CFR 98

[a] Based on 4,380 hours of operation per year.

Table 3-7. Inlet Heater HAP Emissions (per heater)

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
Metal HAPs	8.76E-05	1.92E-04	AP-42 Table 1.4-4
Organic HAPs	0.0297	0.0649	AP-42 Table 1.4-3
Total HAPs	**0.0297**	**0.0651**	

[a] Based on 4,380 hours of operation per year.

3.4 Fire Pump

Table 3-8 provides the estimated hourly and annual emission rates of criteria pollutants, and **Table 3-9** provides the HAPs from the diesel fire pump. The hourly emissions are based on a hp rating of 400 hp and the annual emissions are based on 500 hours per year operation.

Table 3-8. Fire Pump Criteria Pollutant Emissions

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
NO_X	2.50	0.62	Tier 3 Standard
CO	2.30	0.58	Tier 3 Standard
SO_2	0.82	0.21	AP-42 Table 3.3-1
PM_{10}	0.13	0.03	Tier 3 Standard
$PM_{2.5}$	0.13	0.03	Tier 3 Standard
VOC	0.13	0.03	Tier 3 Standard
GHG as CO_2e	456	114	40 CFR 98

[a] Based on 500 hours of operation per year.

Table 3-9. Fire Pump HAP Emissions

Pollutant	Hourly Emissions (lb/hr)	Annual Emissions (tons/year)[a]	Emission Factor Reference
Benzene	2.60E-03	6.51E-04	AP-42 Table 3.3-2
Toluene	1.14E-03	2.85E-04	AP-42 Table 3.3-2
Xylenes	7.95E-04	1.99E-04	AP-42 Table 3.3-2
1,3-Butadiene	1.09E-04	2.73E-05	AP-42 Table 3.3-2
Formaldehyde	3.29E-03	8.23E-04	AP-42 Table 3.3-2
Acetaldehyde	2.14E-03	5.35E-04	AP-42 Table 3.3-2
Acrolein	2.58E-04	6.45E-05	AP-42 Table 3.3-2
Naphthalene	2.36E-04	5.91E-05	AP-42 Table 3.3-2
Total HAPs	**1.06E-02**	**2.64E-03**	

3.5 Balance of Plant

Table 3-10 provides estimated emissions for the remaining equipment to be included in the project. This includes exempt HVAC equipment and SF_6 containing circuit breakers.

Table 3-10. Balance of Plant Emissions Summary

Pollutant	HVAC Equipment (tpy)	SF_6 Equipment (tpy)	Total (tpy)
NO_x	20.3	---	20.3
CO	15.2	---	15.2
SO_2	0.12	---	0.12
PM_{10}	1.56	---	1.56
$PM_{2.5}$	1.56	---	1.56
VOC	1.13	---	1.13
HAPs	0.39	---	0.39
GHG as CO_2e	31,501	64	31,565

tpy = ton(s) per year

3.6 CPGS Facility Summary

Post-modification, the CPGS will consist of two GE LM6000 PF combustion turbines operating in a 2 × 1 combined cycle configuration, designated as CT01A and CT01B. There will also be four GE LM6000 PF combustion turbines operating in simple cycle.[1] All six combustion turbines will have separate stacks, which are separate emission points (EP01 – EP06). Each Wärtsilä engine block, comprised of 6 units, will exhaust to a single, combined stack. Auxiliary support equipment includes 6 inlet air heaters, 1 wet cooling tower associated with the combined cycle steam turbine, 1 auxiliary boiler, 1 natural gas emergency generator, 2 diesel fire pumps, 24 Wärtsilä engines, and balance of plant auxiliary equipment.

The estimated hourly and annual controlled emission rates of criteria pollutants and HAPs from all regulated CPGS emission sources, post-modification, are summarized in **Tables 3-11**.

Table 3-11. CPGS Potential to Emit Facility-Wide Summary

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
EP01[a]	CT01A CCCT Normal Operation	lb/hr	4.6	3.7	0.5	4.0	4.0	4.0	3.0	0.1
		tpy	18.8	15.2	2.0	16.3	16.3	16.3	12.3	0.2

[1] The existing CTs are defined as CT01, CT02, and CT03 in the Acid Rain program. It should be noted that the new CTs will be referred to as CT04, CT05, and CT06 in the Acid Rain Program. This also applies to the GHG reporting requirements, which mimics the Acid Rain program.

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
EP02[a]	CT01B CCCT Normal Operation	lb/hr	4.6	3.7	0.5	4.0	4.0	4.0	3.0	0.1
		tpy	18.8	15.2	2.0	16.3	16.3	16.3	12.3	0.2
EP03[a]	CT02 SCCT Normal Operation	lb/hr	7.7	5.6	0.5	4.0	4.0	4.0	3.0	0.1
		tpy	32.4	23.7	2.0	16.9	16.9	16.9	12.7	0.2
TBD	CT03 SCCT Normal Operation	lb/hr	4.6	5.6	0.5	4.0	4.0	4.0	3.0	0.1
		tpy	19.5	23.7	2.0	16.9	16.9	16.9	12.7	0.3
TBD	CT04 SCCT Normal Operation	lb/hr	4.6	5.6	0.5	4.0	4.0	4.0	3.0	0.1
		tpy	19.5	23.7	2.0	16.9	16.9	16.9	12.7	0.3
TBD	CT05 SCCT Normal Operation	lb/hr	4.6	5.6	0.5	4.0	4.0	4.0	3.0	0.1
		tpy	19.5	23.7	2.0	16.9	16.9	16.9	12.7	0.3
EP01[a]	CT01A CCCT SU/SD	lb/hr	22.5	56.5	0.5	4.0	4.0	4.0	8.2	0.1
		tpy	6.7	17.0	0.1	1.2	1.2	1.2	2.5	0.02
EP02[a]	CT01B CCCT SU/SD	lb/hr	22.5	56.5	0.5	4.0	4.0	4.0	8.2	0.1
		tpy	6.7	17.0	0.1	1.2	1.2	1.2	2.5	0.02
EP03[a]	CT02 SCCT SU/SD	lb/hr	22.9	61.6	0.5	4.0	4.0	4.0	8.7	0.1
		tpy	3.4	9.2	0.1	0.6	0.6	0.6	1.3	0.01
TBD	CT03 SCCT SU/SD	lb/hr	22.9	61.6	0.5	4.0	4.0	4.0	8.7	---
		tpy	3.4	9.2	0.1	0.6	0.6	0.6	1.3	---
TBD	CT04 SCCT SU/SD	lb/hr	22.9	61.6	0.5	4.0	4.0	4.0	8.7	---
		tpy	3.4	9.2	0.1	0.6	0.6	0.6	1.3	---
TBD	CT05 SCCT SU/SD	lb/hr	22.9	61.6	0.5	4.0	4.0	4.0	8.7	---
		tpy	3.4	9.2	0.1	0.6	0.6	0.6	1.3	---
EP06[b]	Inlet Air Heater 01	lb/hr	0.2	1.3	0.01	0.1	0.1	0.1	0.1	0.03
		tpy	0.4	2.7	0.02	0.3	0.3	0.3	0.2	0.1
EP07[b]	Inlet Air Heater 02	lb/hr	0.2	1.3	0.01	0.1	0.1	0.1	0.1	0.03
		tpy	0.4	2.7	0.02	0.3	0.3	0.3	0.2	0.1
EP08[b]	Inlet Air Heater 03	lb/hr	0.2	1.3	0.01	0.1	0.1	0.1	0.1	0.03
		tpy	0.4	2.7	0.02	0.3	0.3	0.3	0.2	0.1
TBD		lb/hr	0.2	0.6	0.01	0.1	0.1	0.1	0.1	0.03

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
	Inlet Air Heater 04	tpy	0.4	1.3	0.02	0.3	0.3	0.3	0.2	0.06
TBD	Inlet Air Heater 05	lb/hr	0.2	0.6	0.01	0.1	0.1	0.1	0.1	0.03
		tpy	0.4	1.3	0.02	0.3	0.3	0.3	0.2	0.06
TBD	Inlet Air Heater 06	lb/hr	0.2	0.6	0.01	0.1	0.1	0.1	0.1	0.03
		tpy	0.4	1.3	0.02	0.3	0.3	0.3	0.2	0.06
EP11[c]	Cooling Tower 01	lb/hr	---	---	---	1.6	0.02	0.02	---	---
		tpy	---	---	---	6.9	0.1	0.1	---	---
EP12[c]	Cooling Tower 02	lb/hr	---	---	---	1.6	0.02	0.02	---	---
		tpy	---	---	---	6.9	0.1	0.1	---	---
EP13[d]	Auxiliary Boiler 01	lb/hr	0.4	0.9	0.02	0.4	0.4	0.4	0.04	0.05
		tpy	1.9	4.1	0.07	1.9	1.9	1.9	0.2	0.2
EP16[e]	Diesel Fire Pump	lb/hr	1.9	0.5	0.004	0.1	0.1	0.1	0.1	0.01
		tpy	0.5	0.1	0.001	0.01	0.01	0.01	0.01	0.001
TBD	Diesel Fire Pump #2	lb/hr	2.5	2.3	0.8	0.1	0.1	0.1	0.1	0.01
		tpy	0.6	0.6	0.2	0.03	0.03	0.03	0.03	0.003
EP17[f]	Natural Gas Emergency Generator	lb/hr	6.5	13.0	0.010	0.2	0.2	0.2	3.2	0.04
		tpy	0.3	0.6	0.0005	0.01	0.01	0.01	0.16	0.01
TBD	Wärtsilä Engine 01 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 02 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 03 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 04 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
TBD	Wärtsilä Engine 05 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 06 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 07 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 08 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 09 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 10 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 11 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 12 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 13 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
TBD	Wärtsilä Engine 14 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 15 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 16 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 17 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 18 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 19 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 20 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 21 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 22 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
TBD	Wärtsilä Engine 23 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 24 Normal Operation	lb/hr	2.0	6.1	0.1	3.6	3.6	3.6	8.1	1.16
		tpy	8.3	25.3	0.4	15.0	15.0	15.0	33.6	5.1
TBD	Wärtsilä Engine 01 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 02 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 03 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 04 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 05 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 01 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 06 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 07 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 08 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 09 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
TBD	Wärtsilä Engine 10 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 11 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 12 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 13 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 14 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 15 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 16 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 17 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 18 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 19 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 20 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 21 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---

Emission Point	Description	Units	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	VOC	Total HAPs
TBD	Wärtsilä Engine 22 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 23 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
TBD	Wärtsilä Engine 24 SU/SD	lb/hr	17.0	20.0	0.08	6.0	6.0	6.0	7.4	---
		tpy	4.3	5.0	0.02	1.5	1.5	1.5	1.9	---
Total PTE for Facility[h]		**tpy**	**461.8**	**940.4**	**21.9**	**511.3**	**504.6**	**504.6**	**938.3**	**124.6**

[a] Combustion Turbines:

1. Tpy for combined cycle combustion turbines based on normal operation, which is 8,760-600 = 8,160 hours. Normal operation does not include startup or shutdown hours.
2. Tpy for simple cycle combustion turbine based on normal operation, which is 8,760-300 = 8,460 hours. Normal operation does not include startup or shutdown hours.
3. Tpy for startup and shutdown of combined cycle combustion turbines based on 600 hours.
4. Tpy for startup and shutdown of simple cycle combustion turbine based on 300 hours.
5. Combustion turbine startup and shutdown emissions for SO_2, PM, PM_{10}, and $PM_{2.5}$ based on the hourly emission rates for normal operation, which are expected to be consistent during startup and shutdown periods.

[b] Inlet Air Heaters: 4,380 hr/yr operation per heater.

[c] Wet Cooling Towers: 8,760 hr/yr operation per tower.

[d] Auxiliary Boilers: 8,760 hr/yr operation per boiler.

[e] Diesel Fire Pump: 500 hr/yr operation.

[f] Natural Gas Emergency Generator: 100 hr/yr operation.

[g] Wärtsilä Engines:

1. Tpy based on normal operation, which is 8,760-500 = 8,260 hours. Normal operation does not include startup hours.
2. Tpy for startup based on 500 hours.

CCCT = combined cycle combustion turbine

PTE = potential to emit

SCCT = simple cycle combustion turbine

[h] Exempt units are excluded from this table. See PTE for emissions from exempt sources.

4. Regulatory Review

This section provides a regulatory review of the applicability of state and federal air quality permitting requirements and air pollution control regulations for the CPGS project proposed by Black Hills. The purpose of this section is to provide appropriate explanation and rationale regarding the applicability of these regulations to the CPGS project. The review is divided into two major sections. The first section addresses federal regulations, and the second section focuses on Wyoming state regulations.

4.1 Federal Regulations

The proposed project was evaluated to demonstrate compliance with applicable federal air quality regulations. Potentially applicable federal regulations include the following:

- NAAQS – 40 CFR 50
- New Source Review (NSR) – 40 CFR 51 and 52
- New Source Performance Standards (NSPS) – 40 CFR 60 Subpart A, Dc, GG, IIII, KKKK, TTTT, TTTTa, JJJJ
- National Emission Standards for Hazardous Air Pollutants (NESHAP) – 40 CFR 63 Subpart A, Subpart YYYY, ZZZZ, DDDDD, and JJJJJJ
- Acid Rain Deposition Control Program – 40 CFR 72, 73, and 75
- Title V Operating Permit Program – 40 CFR 70
- Accidental Release Prevention Program – 40 CFR 68

EPA implements the Acid Rain and Accidental Release Prevention Programs, while Phase II of the Acid Rain Program is administered by the states. The other programs listed are implemented by DEQ through a federally approved State Implementation Plan (SIP).

4.1.1 National Ambient Air Quality Standards

The proposed facility must not cause or contribute to a violation of the NAAQS (**Table 4-1**). The method for determining compliance with NAAQS is specified in applicable NSR requirements discussed in Section 4.1.2.

Table 4-1. National Ambient Air Quality Standards

Pollutant	Averaging Period	Units	National Ambient Air Quality Standard
Nitrogen dioxide (NO_2)	Annual 1-Hour[a]	ppm ppm	0.053 0.100
CO	1-Hour 8-Hour	ppm ppm	35 9
SO_2	1-Hour[b] Annual	ppm ppm	0.075 0.010 (secondary)
PM_{10}	24-Hour	$\mu g/m^3$	150

Pollutant	Averaging Period	Units	National Ambient Air Quality Standard
$PM_{2.5}$	24-Hour[c] Annual[d]	$\mu g/m^3$ $\mu g/m^3$	35 9 (primary); 15 (secondary)
Ozone (O_3)	8-Hour[e]	ppm	0.070[f]
Lead (Pb)	Rolling 3-Month	$\mu g/m^3$	0.15

Source: U.S. Environmental Protection Agency (EPA). 2021. NAAQS Table. July 31. https://www.epa.gov/criteria-air-pollutants/naaqs-table.

[a] The 3-year average of the 98th percentile of the daily maximum 1-hour average must not exceed this standard.

[b] The 3-year average of the annual 99th percentile of the 1-hour daily maximum must not exceed this standard.

[c] The 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed this standard.

[d] The 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed this standard.

[e] The 3-year average of the 4th-highest daily maximum 8-hour average O_3 concentration measured at each monitor within an area over each year must not exceed this standard.

[f] Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

ppm = part(s) per million

$\mu g/m^3$ = microgram(s) per cubic meter

4.1.2 New Source Review and Prevention of Significant Deterioration Applicability

In accordance with EPA guidelines, Black Hills is required to submit a construction permit application for the proposed project. The application is evaluated to determine whether the changes are considered a major modification or a minor modification under the NSR program. The requirements of NSR major modifications vary in two substantial ways, depending on whether the proposed project will be located in an area that is or is not in attainment of NAAQS.

4.1.2.1 New Source Review for Attainment Areas

PSD is the portion of NSR that applies to criteria pollutants that are in attainment of NAAQS. Laramie County is classified as attainment or unclassifiable for all criteria pollutants.[2] New or modified air emission sources locating in Laramie County are, therefore, potentially subject to PSD review for these pollutants, depending on the proposed facility's major source status and on the emission rates of NO_X, CO, SO_2, VOCs, PM_{10}, $PM_{2.5}$, and GHGs.

4.1.2.1.1 PSD Review – Criteria Pollutants

The first step in PSD review is determining whether the proposed project is a major PSD source. Gas turbines with heat recovery are included on the list of 28 source categories that are subject to the 100 tons per year (tpy) major source threshold for PSD review. This is because a combustion turbine combined cycle power plant of the design of CPGS is considered a fossil fuel-fired steam generator with a firing rate greater than 250 MMBtu/hour.

Therefore, the proposed facility is considered a PSD major source because it has a potential to emit (PTE) greater than 100 tpy of any criteria pollutant. Projects at major PSD sources with emissions greater than

[2] U.S. Environmental Protection Agency (EPA). 2025. Current Nonattainment Counties for All Criteria Pollutants. Data is current as of September 30, 2025. https://www3.epa.gov/airquality/greenbook/ancl.html#WY.

the significant emission rates (SER) according to PSD guidelines must obtain a PSD permit before commencing construction. Note that if the PTE is greater than the PSD major source emission rate (100 tpy) for one pollutant, then the source is subject to PSD for all pollutants that exceed the SER.

The proposed modification is expected to have a PTE greater than SER for NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$ and GHG, therefore, will trigger PSD review and must obtain a PSD permit before commencing construction. **Tables 3-2** through **3-10** provide emission estimates for the proposed addition, which includes three simple cycle combustion turbines, three inlet air heaters, emergency fire pump, electric breakers, and 24 Wärtsilä engines.

Table 4-2 compares the PTE estimates for the new equipment to the SERs, showing that the new sources will trigger PSD Review.

Table 4-2. PSD Regulated Pollutants Expected to Be Emitted from the New Equipment as Compared to the Significant Emission Rates

Pollutant	PSD SER (TPY)	New Combustion Turbines PTE (TPY)[a]	New Inlet Air Heaters PTE (TPY)[b]	New Wärtsilä Engines PTE (TPY)[c]	New Fire Pump PTE (TPY)	SF_6 Equipment PTE (TPY)	Total PTE from New Equipment (TPY)	Is Pollutant Subject to PSD Review for Proposed Project?
CO	100	98.84	3.91	727	0.58	---	**829.9**	YES
NO_X	40	68.72	1.27	300	0.62	---	**370.9**	YES
Particulate Matter (PM)	25	52.56	0.79	396	0.03	---	**449.2**	YES
Particulate Matter (PM_{10})	15	52.56	0.79	396	0.03	---	**449.2**	YES
Particulate Matter ($PM_{2.5}$)	10	52.56	0.79	396	0.03	---	**449.2**	YES
VOCs	40	42.03	0.57	851	0.03	---	**893.9**	YES
SO_2	40	6.31	0.06	8.85	0.21	---	**15.43**	NO
CO_2e	100,000	562,406	12,361	1,662,062	114	64	**2,337,008**	YES

[a] The PTE for the new combustion turbines is a total for the three proposed turbines. These emissions also include estimates from startup and shutdown operations.

[b] The PTE for the new inlet air heaters is a total for the three proposed inlet air heaters.

[c] The PTE for the new Wärtsilä engines is a total for the 24 proposed engines. These emissions also include estimates from startup and shutdown operations.

The PTE is greater than the PSD SER for NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$ and GHG. Therefore, this CPGS project is subject to PSD review for NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG. The primary elements of PSD requirements are as follows:

- Compliance with applicable provisions of the SIP
- Compliance with applicable NSPS and NESHAP
- Application of BACT to emissions of NO_X, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and GHG
- Demonstration that CPGS allowable emissions will not cause or contribute to a violation of the NAAQS or allowable PSD increments for NO_X, CO, PM_{10}, and $PM_{2.5}$
- Analysis of "other impacts" including impacts on local soils, vegetation, and visibility

4.1.2.2 New Source Review for Nonattainment Areas

Nonattainment area NSR is the portion of NSR that applies to areas that are not in attainment of NAAQS. As stated previously, Laramie County is classified as attainment or unclassifiable for all NAAQS. Therefore, Nonattainment area NSR is not applicable to this CPGS modification/project.

4.1.3 New Source Performance Standards (40 CFR Part 60)

This section outlines the NSPS evaluated for the project.

4.1.3.1 Subpart A – General NSPS Provisions

General NSPS provisions (40 CFR 60 Subpart A) are applicable to source subject to an NSPS Subpart and include specific notification requirements for the proposed project. Some of the notifications required include commencement of construction, anticipated operation and actual startup of the combustion turbines.

4.1.3.2 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

The inlet air heaters will be subject to NSPS under 40 CFR 60 Subpart Dc. Subpart Dc applies to "steam generating units" equal to or greater than 10 MMBtu/hour and less than 100 MMBtu/hour that commenced construction, modification, or reconstruction after June 9, 1989. The proposed inlet air heaters are natural gas-fired water tube boiler-type units with a maximum heat input capacity of 16.07 MMBtu/hour each.

Subpart Dc does not impose numerical emission limits for PM or SO_2 when the unit combusts only pipeline quality natural gas but requires the facility to maintain records of the amount of fuel combusted in each unit and demonstrate continuous use of natural gas to show compliance.

Because the inlet air heaters will be fired exclusively with pipeline quality natural gas and have a heat input capacity less than 100 MMBtu/hour, compliance with Subpart Dc will be achieved through monitoring and recordkeeping of fuel combusted.

4.1.3.3 Subpart GG – Standards of Performance for Stationary Gas Turbines

The combustion turbines will be subject to NSPS under 40 CFR 60 Subpart GG. This applies to all stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 million Btu) per hour, based on the lower heating value of the fuel-fired and commenced construction, modification, or reconstruction after October 3, 1977. The proposed CTGs are which are subject to Subpart KKKK, are exempt from the requirements of Subpart GG per §60.4305(b).

4.1.3.4 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII (§60.4200 et seq.) applies to stationary CI RICE and the manufacturers and/or owners and operators of these engines. For purposes of this application, Subpart IIII is applicable the emergency fire pump as a new CI RICE and will comply with the requirements of Subpart IIII.

The fire pump diesel emergency engine will be a certified engine capable of meeting the applicable 40 CFR 60.4205(c) and Table 4 limits.

4.1.3.5 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

The combustion turbines will be subject to NSPS under 40 CFR 60 Subpart KKKK. This is because Subpart KKKK applies to all stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour constructed, modified, or reconstructed after February 18, 2005. The proposed CPGS combustion turbines rated at 330 MMBtu/hour (at site conditions and based on higher heating value [HHV]) will have a peak heat input greater than 10.7 gigajoules (10 MMBtu/hour). Subpart KKKK regulates pollutant emissions of NO_X and SO_2 for each turbine.

For NO_X, the applicable Subpart KKKK standard is for new, modified, or reconstructed natural gas-fired combustion turbines with heat input greater than 50 MMBtu/hour and less than 850 MMBtu/hour. Per Subpart KKKK Table 1, the applicable NO_X limitation for each turbine is either 25 ppm at 15 percent O_2 or 1.2 pounds per megawatt-hour. Black Hills proposes a NOx BACT limit of 5 ppm @15%O_2 during normal operation on an hourly basis, which is significantly less than the NSPS emission limit.

For SO_2, 40 CFR 60 Subpart KKKK regulates SO_2 emissions by limiting SO_2 emissions to 0.90 pound per megawatt-hour (lb/MWh) or by limiting the fuel potential sulfur emissions to 0.060 lb SO_2/MMBtu. The proposed turbines will meet the NSPS requirements by combusting natural gas (approximately 0.0006 lb SO_2/MMBtu).

The NSPS requires that a NO_X CEMS be installed to continuously monitor NO_X emissions and a performance test is required to be performed within 180 days of initial startup of a turbine with specified reference method, operations, notification, and recordkeeping. Black Hills proposes to comply with these specific requirements.

4.1.3.6 Proposed Subpart KKKKa – Standards of Performance for Stationary Combustion Turbines

A new Subpart KKKKa rule has been proposed that would potentially be applicable to the proposed combustion turbines. This rule has not been finalized. However, if this rule were to be finalized and

applicable to the combustion turbines, the turbines would be required to meet the applicable requirements. Black Hills will comply with the requirements of Subpart KKKKa when applicable.

4.1.3.7 Subpart TTTT – Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources – Electric Utility Generating Units

Subpart TTTT applies to stationary combustion turbines that commence construction after January 8, 2014, but on or before May 23, 2023, and have a base heat input rating greater than 250 MMBtu/hour and serving a generator capable of selling 25 MW of electricity to a utility power distribution system.

The proposed CTGs would commence construction after May 23, 2023, and would not be subject to this subpart.

4.1.3.8 Subpart TTTTa – Standards of Performance for Standards of Performance for Greenhouse Gas Emissions for Modified Coal-Fired Steam Electric Generating Units and New Construction and Reconstruction Stationary Combustion Turbine Electric Generating Units

Subpart TTTTa applies to stationary combustion turbines that commences construction or reconstruction after May 23, 2023, have a base heat input rating greater than 250 MMBtu/hour, and serve a generator capable of selling 25 MW of electricity to a utility power distribution system.
[40 CFR §60.5508a and 60.5509a]

This rule would currently be applicable to the combustion turbines. However, this rule is proposed to be repealed under Docket ID No. EPA-HQ-OAR-2025-0124. If the rule remains in effect when the combustion turbines become operational, the units will be required to meet the requirements of this subpart.

4.1.3.9 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The 24 18V50SG gas engines are subject to the NSPS Subpart JJJJ limits for nonemergency spark ignited natural gas engines greater than 500 hp manufactured after July 1, 2010. The applicable limits from § 60.4233(e) and Table 1, are:

- 1 g (gram) NO_x/hp-hr (82 ppmvd at 15% O_2)
- 2 g CO/hp-hr (270 ppmvd at 15% O_2)
- 0.7 g VOC/hp-hr (60 ppmvd at 15% O_2)

The proposed natural gas-fired engines will satisfy these requirements. The proposed natural gas engines will not be certified by the manufacturer; therefore, Black Hills will be required to perform initial performance tests. **Table 4-3** compares emission limits and expected emission rates.

Table 4-3. 18V50SG Emission Limits Comparison

Pollutant	Emission Limit (g/hp-hr)[a]	Engine Emission Rate (g/hp-hr)
NO_x	1	0.04
CO	2	0.11
VOC (as propane)	0.7	0.15

[a] Assumes that the VOC emission limit is measured as propane.

Performance tests must be conducted within 10% of the 100% peak (or highest achievable) power load, with three separate test runs for each performance test, each lasting at least 1 hour [*60.4244(c)*]. Performance testing will be conducted within 1 year of engine startup and every 8,760 hours of operation or 3 years, whichever comes first. Black Hills will keep a maintenance plan and records of conducted maintenance to the engines.

Recordkeeping requirements include maintaining a maintenance plan and records of conducted maintenance, notifying the DEQ in writing if testing is unexpectedly delayed, and maintaining records of all notifications submitted and supporting documentation. For noncertified engines or certified engines operating in a noncertified manner, documentation that the engine meets the emission standards must be maintained.

Reporting requirements mandate submitting a copy of each performance test to EPA within 60 days after completion, including all quality assurance and quality control data.

Notification requirements include submitting an initial notification to EPA for engines not certified by the manufacturer to meet specific emission standards. This notification must include the name and address of the owner, the address where the engine is located, details about the engine (such as make, model, engine family, serial number, model year, maximum power, and engine size), information about any emission control equipment used, and the type of fuel the engine used.

4.1.4 National Emission Standards for Hazardous Air Pollutants (40 CFR Part 63)

This section describes NESHAPs that were evaluated for the project. Current PTE estimates indicate that the facility would become a major source of HAPs upon completion of the project; however, Black Hills is proposing to complete an emissions study of HAPs from the Wärtsilä engines once they become operational to determine whether the facility could retain its status as an area source.

4.1.4.1 Subpart A – General Provisions

General maximum achievable control technology (MACT) provisions (40 CFR 63 Subpart A) are applicable to sources subject to a MACT Subpart and include various notification, monitoring, and recordkeeping requirements for the proposed project. The applicable source specific subparts in 40 CFR 63 indicate which of the general provision in Subpart A are applicable to affected sources.

4.1.4.2 Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

The MACT rule (40 CFR 63 Subpart YYYY) establishes national emission limitations and operating limitations for HAP emissions from stationary combustion turbines located at major sources of HAP emissions. With the proposed project emissions, the facility would be considered a major source of HAPs, and subject to the requirements of Subpart YYYY.

The proposed turbines would be subject to a formaldehyde emissions limit of 91 ppbvd @ 15% O_2, except during turbine startup [Subpart YYYY, Table 1]. Compliance must be determined via initial and annual stack tests [Subpart YYYY, Table 3]. As turbines using an oxidation catalyst, the 4-hour rolling average catalyst inlet temperature must be maintained within the range suggested by the manufacturer [Subpart YYYY, Table 2].

If it were determined that the facility could retain its status as an area source for HAPs based on the results of the HAP emissions study, this rule would not apply.

4.1.4.3 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The RICE MACT (40 CFR 63 Subpart ZZZZ) establishes national emission limitations and operating limitations for HAP emissions from stationary RICE located at major and area sources of HAP emissions. With the proposed project emissions, the facility would be considered a major source of HAPs, and the Wärtsiläs and Fire Pump would be subject to Subpart ZZZZ.

<u>Wärtsiläs</u>

The proposed Wärtsilä RICE would be subject to either reduction of CO emissions by 93% or a formaldehyde emission limit of 14 ppmvd @15% O_2, except during engine startup [Subpart ZZZZ, Table 2a]. The proposed engines will comply with the requirements of this rule. As RICE using an oxidation catalyst, the catalyst must be maintained so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load ± 10 percent from the pressure drop across the catalyst measured during the initial performance test; and the exhaust temperature must be maintained so that the catalyst inlet temperature is ≥ 450°F and ≤ 1,350°F [Subpart ZZZZ, Table 2b].

An initial performance test or initial compliance demonstration must be completed within 180 days of startup. After meeting initial compliance, subsequent performance tests must be performed semi-annually. After two consecutive compliance tests, the frequency may be reduced to annual testing. However, if a later test fails or operating limitations are exceeded, semi-annual testing must resume [Subpart ZZZZ, Table 3].

Recordkeeping requirements include maintaining a maintenance plan and records of conducted maintenance, performance test data, monitoring records, and maintaining records of all notifications submitted to regulators and supporting documentation. For noncertified engines or certified engines operating in a noncertified manner, documentation that the engine meets the emission standards must be maintained. All records must be retained for at least 5 years.

Reporting requirements mandate submitting a copy of each performance test to EPA within 60 days after completion, including all quality assurance and quality control data. Semi-annual compliance reports (or annual if testing frequency is reduced) must be submitted and must include facility and engine

information, a summary of deviations, total operating hours, operating parameter data, corrective actions taken, and any startup/shutdown/malfunction events that caused deviations from the standard.

Notification requirements include submitting an initial notification to EPA no later than 120 days after the source becomes subject to the standard. A notification of intent to conduct a performance test must be submitted at least 60 days before the test date. A Notification of Compliance Status must be submitted within 60 days after completion of the initial performance test or other initial compliance demonstration. A startup notification is required within 15 days after engine startup. Notifications must include the name and address of the owner, the address where the engine is located, details about the engine (such as make, model, engine family, serial number, model year, maximum power, and engine size), information about any emission control equipment used, and the type of fuel the engine used.

If it were determined that the facility could retain status as an area source for HAPs based on the results of the HAP emissions study, these units would meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart IIII according to 40 CFR §63.6590(c)(1).

Fire Pump

The requirements in 40 CFR 63 Subpart ZZZZ apply to stationary RICE at a major or area source of HAP emissions. As a new emergency RICE located at a major source of HAPs, the fire pump would comply with the requirements of Subpart ZZZZ by complying with 40 CFR 60, Subpart IIII.

4.1.4.4 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

Under NESHAP Subpart DDDDD (5D), a process heater is defined as an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material (e.g., glycol or a mixture of glycol and water) for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with process materials. Comfort heat or space heat, food preparation for onsite consumption, and autoclaves are specifically excluded from the Subpart 5D process heater definition as are waste heat process heaters.

The proposed inlet air heaters are water tube boiler-type units, subject to NESHAP Subpart DDDDD requirements as a unit that will transfer heat indirectly to a process material. The proposed inlet air heaters would be categorized as process heaters and subcategorized as units designed to burn gas 1 fuels, making them not subject to the emissions limits in Tables 1, 2, or 1-15 or the operating limits in Table 4 to this subpart.

As with gas 1 fired units greater than 10 MMBtu/hour, Black Hills must conduct annual tune-ups, no more than 13 months after the previous tune-up, unless equipped with a continuous O_2 trip system. If equipped with a continuous oxygen trip system, Black Hills must conduct tune-ups every 5 years, no more than 61 months after the previous tune-up.

If it were determined that the facility could retain status as an area source for HAPs based on the results of the HAP emissions study, this rule would not apply.

4.1.4.5 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

NESHAP 40 CFR 63 Subpart JJJJJJ applies to industrial, commercial, and institutional boilers located at area sources of HAPs, except for those exempted under §63.11195. This subpart is not applicable since the facility is a major source of HAPs.

If it were determined that the facility could retain status as an area source for HAPs based on the results of a HAP emissions study, this rule would still not be applicable to the inlet air heaters as they would be considered process heaters and not boilers as defined in 40 CFR §63.11237.

4.1.5 Acid Rain Program

The acid rain program applies to electric utility generating units, including the turbines planned for the proposed project. The facility, therefore, is subject to Phase II of the Acid Rain Program pursuant to Title IV of the Clean Air Act (CAA) and is required to have a Title V operating permit. The application to EPA for all affected units was submitted at the time of the original permitting of the facility, and no modification to the permit is required for the changes requested in this permit application. The facility will be required to obtain allowances for calendar year SO_2 emissions. These allowances are expected to be readily available on the open market trading system or from other Black Hills plants. Additionally, the acid rain permit will require emissions monitoring for NO_X and fuel monitoring for sulfur content. The Wärtsiläs meet the new unit exemption in 40 CFR 72.7(a) as new units serving generators less than 25 MWe and burning gaseous fuel with and annual average sulfur content of 0.05% or less by weight.

4.1.6 Title V Operating Permit Program

The CAA requires states to develop an operating permit program (40 CFR 70) in which major sources are permitted for operating. The DEQ-AQD Standards and Regulations (Chapter 6, Section 3) outline the requirements for a Title V permit in conjunction with the CAA. Because CPGS emits more than 100 tpy of CO, NO_X, and PM, it is considered a Title V major source. The facility will be required to submit an amendment to the Title V operating permit within 1 year of startup of the proposed project. Applicable requirements regarding emission limits, monitoring, recordkeeping, and reporting will be included in the operating permit application. Additionally, note that because GHGs are now regulated under the CAA, incorporation of applicable GHG requirements are required in the Title V permit for sources that are already subject to Title V for criteria pollutants, which includes CPGS as an "anyway source."

4.1.7 Accidental Release Prevention Program

The use of aqueous NH_3 for NO_X control at CPGS is not anticipated to require a Risk Management Plan (RMP). The Accidental Release Prevention Program (ARPP) standard requires RMP preparation for aqueous NH_3 storage for more than 20,000 pounds of NH_3 of 20 percent or greater. The facility intends to use concentrations of aqueous NH_3 less than 20 percent for the NO_X control and/or maintain less than 20,000 pounds onsite. Therefore, no RMP will be required for the CPGS facility.

4.2 State Regulations

This section outlines state regulations evaluated for the project.

4.2.1 Applicable State Regulations

In addition to federal regulations, the proposed project was evaluated to determine compliance with applicable state air quality regulations. The applicable state regulations for CPGS from the DEQ-AQD Standards and Regulations include the following:

- Chapter 1 – Common Provisions
- Chapter 2 – Wyoming Ambient Air Quality Standards
- Chapter 3 – General Emission Standards
- Chapter 5 – National Emission Standards
- Chapter 6 – Permitting Requirements
- Chapter 11 – Acid Rain Program

4.2.1.1 Chapter 1 – Common Provisions

Chapter 1 includes unavoidable equipment malfunction notification requirements, enforcement discretion provisions, and use of any credible evidence for determining compliance. CPGS will follow these requirements as applicable.

4.2.1.2 Chapter 2 – Wyoming Ambient Air Quality Standards

Table 4-4 displays the applicable ambient air quality standards for Wyoming (Chapter 2). The dispersion modeling analysis submitted as a standalone report alongside this application demonstrates that CPGS will not contribute to exceedances of these standards.

Table 4-4. Wyoming Ambient Air Quality Standards

Pollutant	Period	Units	WAAQS
Ozone	8-Hour	ppm	0.070
CO	8-Hour	mg/m^3	10
CO	1-Hour	mg/m^3	40
NO_2	Annual Average	ppb	53
NO_2	1-Hour Average	ppb	100
NO_2	Annual Arithmetic Mean (secondary)	ppm	0.053
PM_{10}	24-Hour Average	$\mu g/m^3$	150
PM_{10}	Annual Arithmetic Mean	$\mu g/m^3$	50
$PM_{2.5}$	Annual Arithmetic Mean	$\mu g/m^3$	15
$PM_{2.5}$	98^{th} percentile 24-Hour Average	$\mu g/m^3$	35
SO_2	1-Hour	ppb	75
SO_2	3-Hour (secondary)	ppm	0.5

Chapter 2 Ambient Standards: Effective 02/05/2018 (https://rules.wyo.gov/DownloadFile.aspx?source_id=12731&source_type_id=81&doc_type_id=110&include_meta_data=Y&file_type=pdf&filename=12731.pdf&token=0961220290950231711300440950880992272510811890 55)

mg/m^3 = milligram(s) per cubic meter

WAAQS = Wyoming Ambient Air Quality Standards

4.2.1.3 Chapter 3 – General Emission Standards

This section outlines general emission standards for opacity, fugitive dust, NOx, and CO.

4.2.1.3.1 Particulate Matter – Opacity

Visible emissions from the turbines, heaters, and engines must not exceed 20 percent opacity. It is expected that the proposed units at CPGS will comply with these limitations.

4.2.1.3.2 Particulate Matter – Fugitive Dust

Chapter 3 requires control measures to minimize fugitive dust during construction, demolition, and handling and transporting of materials.

4.2.1.3.3 Emission Standards for Nitrogen Oxides

Chapter 3, Section 3 requires NOx emissions from new gas-fired fuel burning equipment to be limited to 0.20 lb/MMBtu of heat input. CPGS will comply with the applicable NO_x limit.

4.2.1.3.4 Emission Standards for Carbon Monoxide

Emissions of CO from any stationary source shall be limited as may be necessary to prevent ambient standards from being exceeded. CPGS will comply with applicable requirements.

4.2.1.4 Chapter 5 – National Emission Standards

CPGS is subject to the requirements of the federal NSPS (40 CFR 60). Therefore, Chapter 5 applies, and state regulations are consistent with the federal standards as discussed in the NSPS section.

4.2.1.5 Chapter 6 – Permitting Requirements

This section outlines permitting requirements.

4.2.1.5.1 Section 2 – Permitting Requirements for Construction, Modification and Operation

CPGS is required to submit a construction permit application and receive a construction permit per Chapter 6, Section 2 for all regulated emission sources before commencing construction of the proposed project. Proposed emission sources are subject to construction permit requirements, in accordance with Chapter 6, Section 2(a)(i).

The proposed facility must not prevent the attainment or maintenance of any ambient air quality standard, emit any pollutant in amounts which will prevent attainment or maintenance by any other state, or interfere with measures required by the Federal CAA to be included in the applicable SIP for any other state to prevent significant deterioration of air quality or to protect visibility, in accordance with Chapter 6, Section 2(c).

Chapter 6, Section 2(k) outlines the sources that do not require approval to construct or modify. The HVAC equipment meets the exemption criteria of 2(k)(ii) for air conditioning and ventilation systems not designed to remove air pollutants generated by or released from equipment.

4.2.1.5.2 Section 3 – Operating Permits

CPGS is a Title V major source and will be required to submit a Title V operating permit application amendment within 1 year of startup. As discussed previously, this regulation is consistent with 40 CFR 70.

4.2.1.5.3 Section 4 – Prevention of Significant Deterioration

CPGS is required to obtain a PSD permit for the proposed modification. The state permit requirements are consistent with the federal PSD requirements as defined in the NSR and PSD Applicability section. This application provides a BACT analysis and dispersion modeling analysis.

4.2.1.5.4 Section 6 – Permit Requirements for Case-by-Case MACT

CPGS is subject to the permit requirements of Section 6 for case-by-case MACT. This section applies to new or reconstructed major sources of HAPs unless the source is already subject to a standard issuant pursuant to section 112(d), 112(h), or 112(j) of the CAA and incorporated in 40 CFR Part 63 or Chapter 5, Section 3. The proposed facility's potential HAP emissions exceed major source thresholds; however, all proposed sources are subject to applicable standards issued pursuant to section 112(d) and incorporated in 40 CFR 63.

4.2.1.6 Chapter 7

This section summarizes Chapter 7 of the state regulations.

4.2.1.6.1 Section 3 – Compliance Assurance Monitoring

This rule applies to pollutant-specific emissions at a major source required to obtain a Title V operating permit if the unit meets the following criteria:

- Subject to a nonexempt emissions limitation or standard,
- Use a control device to achieve compliance with that limitation or standard, and
- Have pre-controlled potential emissions of the regulated air pollutant greater than the major source threshold.

The turbines will be subject to nonexempt emissions limitation under BACT for NOx, CO, and VOC and will use SCR to control NOx emissions and oxidation catalyst to control emissions of CO and VOC. Pre-controlled potential emissions of NOx and CO are greater than the major source thresholds and would be subject the requirements of Compliance Assurance Monitoring (CAM). NOx and CO will be monitored by CEMS meeting the definition of a continuous compliance determination method. As a result, CAM would not apply to BACT limits for NOx and CO. Pre-controlled emissions of VOC do not exceed major source thresholds and would not be subject to CAM.

The Wärtsiläs will be subject to nonexempt emissions limitation under BACT for NOx, CO, and VOC and will use SCR to control NOx emissions and oxidation catalyst to control emissions of CO and VOC. Pre-controlled potential emissions of NOx and CO are greater than the major source thresholds and would be subject the requirements of CAM. Monitoring of control device parameters will be implemented to satisfy CAM. Pre-controlled emissions of VOC do not exceed major source thresholds and would not be subject to CAM.

The DLN pollutant controls for the inlet air heaters are integral to the burner design and function to prevent pollutants from forming rather than destroy or remove the pollutants. The DLN technology would

not be considered a *control device* according to Section 3(a). No pollutants from the inlet air heater would be subject to this rule.

There is no control device equipped on the Fire Pump engine. As a result, CAM would not apply to the fire pump.

4.2.1.7 Chapter 9 – Visibility Impairment/PM Fine Control

This rule applies to all Class 1 areas in Wyoming and to sources from which emissions may reasonably be anticipated to cause or contribute to any impairment of visibility in any such area.

Applicants for new major stationary sources and major modifications shall demonstrate that the proposed source will not cause an adverse impact on visibility in a Class I area as required by Chapter 6, Section 4. Applicable air quality dispersion modeling analyses are included in the Air Quality Impact Analysis for Cheyenne Light, Fuel and Power Cheyenne Prairie Generating Station, provided at DEQs request under separate cover from the construction application.

4.2.1.8 Chapter 11 – Acid Rain Program

Chapter 11 incorporates the Federal Acid Rain Program (40 CFR 72, 73, and 75) by reference. Refer to the discussion in the federal section concerning Acid Rain Permit requirements. An acid rain permit application is included for applicable sources in Appendix G.

5. Criteria Pollutant BACT Analysis

Black Hills' CPGS Business Plan has determined that natural gas simple cycle power generation along with the RICE units is the only alternative that meets all of the CPGS requirements for economic and reliable power 24 hours per day and in all weather conditions. As such, other generation technologies such as coal, wind, solar, or other types of turbines/ engines were not evaluated in this BACT analysis. This is consistent with EPA's March 2011 *PSD and Title V Permitting Guidance for Greenhouse Gases,* which states, "EPA has recognized that a Step 1 list of options need not necessarily include inherently lower polluting processes that would fundamentally redefine the nature of the source proposed by the permit applicant…", and "…the permitting authority should keep in mind that BACT, in most cases, should not regulate the applicant's purpose or objective for the proposed facility…."

5.1 Background

This section presents analysis of possible methods of minimizing emissions from the CPGS modification, considering available technology, economic feasibility, and other environmental considerations.

5.1.1 Equipment Overview

The proposed modification will include the following:

- Three GE LM6000 PF CTGs will be fired by pipeline quality natural gas and equipped with the SPRay INTercooling (SPRINT) option, which increases efficiency and power output through the injection of demineralized water into the compressor stages of the combustion turbine. The turbines will be operated in simple cycle mode.
- Twenty-four Wärtsilä 18V50SG RICEs will be fired by pipeline quality natural gas.
- Three 16.07 MMBtu/hour inlet air heaters.
- One 400 hp diesel fire pump.

For the GE LM6000 PF combustion turbines firing natural gas, estimated uncontrolled emission rates from each combustion turbine are as follows: NO_X at 25 ppmvd @15%O_2, CO at 70 ppmvd @15%O_2, VOC at 8.4 ppmvd @15%O_2, and PM_{10} at 4.0 lb/hour (total front and back catch). All of these emissions are measured in the exhaust from the CTG before reductions from emissions control equipment, and are based upon the combustion turbine operation from 50 to 100 percent load and ambient air temperature in the range of 0 to 108°F.

For the Wärtsilä 18V50SG engines firing natural gas, estimated emission rates from each engine are as follows: NO_X at 2.0 lb/hr, CO at 6.1 lb/hr, VOC at 8.1 lb/hr, and PM_{10} at 3.6 lb/hr.

Black Hills plans to install three Group Simoneau A1-600,inlet air heaters or inlet air heaters of similar size with the same or less heat input. Emission rates for these natural gas-fired heaters, based on a heat input rating of 16.07 MMBtu/hour, are estimated as follows: NO_X at 0.19 lb/hr, CO at 0.59 lb/hr, VOC at 0.09 lb/hr, and PM_{10} at 0.12 lb/hr.

Black Hills plant to install one diesel fire pump engine. Emission rates for this unit, based on a rating of 400 hp, are estimated as follows: NO_X at 2.5 lb/hr, CO at 2.3 lb/hr, VOC at 0.13 lb/hr, and PM_{10} at 0.13 lb/hr.

For this analysis, all emissions discussed are considered to be at average conditions, unless stated otherwise, and are representative of normal operation. Emissions will vary during startup and shutdown, and during extreme operating conditions such as low load and/or high ambient temperature.

5.2 BACT Determination

The following sections present the required BACT analyses. **Appendix C** provides emissions calculations, and **Appendix D** provides RACT/BACT/LAER Clearinghouse (RBLC) search results.

5.2.1 Applicability

The requirement to conduct a State BACT analysis and determination is set forth in DEQ-AQD Air Quality Standards and Regulations, Chapter 6, Section 2(c)(v) and as referenced in the federal regulations at 40 CFR Part 52.2.

5.2.2 Top-Down BACT Process

EPA has developed a process for conducting BACT analyses. This method is referred to as the "top-down" method. The steps to conducting a top-down analysis are listed in EPA's *Draft New Source Review Workshop Manual* (EPA, 1990), and include the following:

- Step 1 – Identify All Control Technologies
- Step 2 – Eliminate Technically Infeasible Options
- Step 3 – Rank Remaining Control Technologies by Control Effectiveness
- Step 4 – Evaluate Most Effective Controls and Document Results
- Step 5 – Select BACT

Each of these steps has been conducted for NO_X, CO, VOC, and PM_{10} as described as follows.

5.2.3 BACT Analysis

The following "top-down" BACT analysis for NO_x, CO, VOC, and PM_{10} has been prepared in accordance with EPA's 1990 *Draft New Source Review Workshop Manual*. A top-down BACT analysis takes into account energy, environmental, economic, and other costs associated with each alternative technology.

5.2.4 Economic Analysis Methodology

The cost estimation methodology used in this BACT analysis is consistent with the latest EPA guidance (EPA, 1996). Vendor quotes and engineering estimates are the basis for calculating the total capital and operating costs, or cost differentials, for control options, and are documented accordingly. Standard engineering economic analysis is used to convert all costs to equivalent annual costs so that the pollution control cost-effectiveness (in dollars per ton of pollutant removed) may be calculated for comparison with other control options.

The cost estimates include capital costs and annual operation and maintenance (O&M) costs. Capital costs and annual O&M costs include both direct and indirect costs. The following variables, equations, and

assumptions were used to evaluate the cost-effectiveness of alternative control strategies for the pollutants in question:

$$CRF = i*(1+i)^n/((1+i)^n-1)$$

Where:

CRF = capital recovery factor (a derived value, when multiplied by the total capital cost, results in an equivalent annual cash flow necessary to retire the capital outlay, assuming a given interest rate and number of years of payment)

i = interest rate (assumed at 6 percent, based on Black Hills' economic judgment)

n = equipment life (assumed 20 years for the equipment and 3 years for the catalyst, based on Black Hills' engineering judgment)

Cost-effectiveness is calculated by dividing the total annualized costs of the technology by the potential reduction in emissions from the application of the technology, to determine cost per unit of emissions reduced. Cost-effectiveness of each technology option is analyzed for reasonableness of removal costs, and is compared against the cost-effectiveness of technology options. Incremental cost is the difference in cost of two technology options divided by the difference in emission reduction between the same two technologies.

5.2.5 Energy Impact Analysis

Two forms of energy impacts that may be associated with a control option for an electric power generating unit can be identified as follows:

1. An increase in energy consumption resulting from increased heat rate (reduced efficiency) may be shown as a reduction of electrical generation resulting from the application of the control technology due to increased parasitic load or backpressure.
2. The reduced unit availability may be due to additional maintenance requirements for the applied control technology.

5.2.6 Environmental Impact Analysis

The primary focus of the environmental impact analysis is the reduction in ambient concentrations of the pollutant being controlled. Increases and decreases in other criteria or non-criteria pollutants may occur with some technologies and should also be identified. Non-air impacts, such as solid waste disposal and increased water consumption, may be an issue as well.

5.3 Combustion Turbine BACT

This section describes the combustion turbine BACT.

5.3.1 Simple Cycle Combustion Turbine BACT for NO_X

Black Hills is proposing to install three new simple cycle combustion turbines at the CPGS facility.

Table 5-1 provides a summary of combustion turbines from the RACT/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC), which have been recently permitted and operating in simple cycle configuration. Permit information for each comparable unit was reviewed to determine permitted emission levels and determined control technologies. In addition, the location of the facility was evaluated to determine whether the site was in an attainment or nonattainment area. For those sites in a nonattainment area, the affected pollutant analysis was considered to be a LAER review instead of BACT. A NO_X catalyst is a typical control technology for both LAER and BACT determinations; the level of emissions control is generally greater for the LAER units.

Table 5-1. NSR RACT/BACT/LAER Clearinghouse Database: BACT-PSD Sources for NO_x

Simple Cycle Turbines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	NO_x Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
LA-0331	Venture Global Calcasieu Pass, LLC Calcasieu Pass LNG Project Calcasieu, LA	Aeroderivative Simple Cycle Combustion Turbine	263	MMBtu/hour	SCR, exclusive combustion of fuel gas, and good combustion practices	2.5	PPMV	30-day rolling average	BACT-PSD	PDS-LA-805 09/21/2018
LA-0383	Lake Charles LNG Export Company, LLC Export Terminal Calcasieu, LA	Turbines (EQT0020 – EQT0031)	508.8 511.3	MMBtu/hour	LNB + SCR	3.1	PPMVD @ 15%O2	3-hour average	BACT-PSD	PSD-LA-838 09/03/2020
*TN-0187	Tennessee Valley Authority Johnsonville Humphreys, TN	Ten Simple Cycle NG Turbines	465.8	MMBtu/hour	Dry low-NOx burners SCR	5	PPMVD @ 15%O2	4-hour rolling average excluding SUSD	BACT-PSD	979348 08/31/2022

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	NO_x Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
TX-0933	Nacero TX 1, LLC Nacero Penwell Facility Ector, TX	Turbine	34.5	MW	LNBs and SCR	9	PPMVD	15%O2	BACT-PSD	164137 PSDTX1594 GHGPSDTX207 11/17/2021
*TX-0989	Entergy Texas Inc Lone Star Power Station Liberty, TX	Simple Cycle Gas Turbines			DLN combustors and an aqueous NH_3-based SCR system	2.5	PPMVD	15%O2 1-hour	LAER	177473, N316 03/17/2025
WY-0070	Black Hills Power, Inc.	Simple Cycle Turbines (EP03-EP05)	40	MW	SCR	5	PPMVD @15%O_2	1-hour average	BACT	CT-12636 8/28/2012

Note:

Draft determinations are marked with a " * " beside the RBLCID.

SUSD = startup/shutdownWY-0070 is included since this entry is for existing units at CPGS.

5.3.1.1 Identify All Control Technologies

There are three basic means of controlling NO_X emissions from combustion turbines: wet combustion controls, dry combustion controls, and post-combustion controls. Wet and dry combustion controls act to reduce the formation of NO_X during the combustion process in the turbine, while post-combustion controls remove NO_X from the exhaust stream from the turbine. Potential NO_X control technologies for combustion turbines include the following:

- **Wet Combustion Controls:**
  - Water injection
  - Steam injection
- **Dry Combustion Controls:**
  - DLE combustors
  - Catalytic combustors (e.g., XONON)
- **Post-Combustion Controls:**
  - SCR
  - Selective non-catalytic reduction (SNCR)
  - Non-selective catalytic reduction (NSCR)
  - $SCONO_x$

5.3.1.2 Eliminate Technically Infeasible Options

The performance and technical feasibility of available NO_X control technologies are discussed in more detail in the following sections.

5.3.1.2.1 Wet Combustion Controls

Steam or water injection directly into the turbine combustor is one of the most common NO_X control techniques for combustion turbines. These wet injection techniques lower the flame temperature in the combustor and, thereby, reduce thermal NO_X formation. Water or steam injection also allows more fuel to be burned without overheating critical turbine parts, thereby increasing the combustion turbine's maximum power output.

The water or steam-to-fuel injection ratio is the most significant factor affecting the performance of wet combustion controls. Water injection will not be used in the CPGS combustion turbines; however, the GE LM6000 PF combustion turbines will have DLE combustion controls installed. A DLE NO_X emission rate of 15 ppmvd @15% O_2 exceeding the 50 percent to full load range is expected for the exhaust flue gas from combustion turbines operating in simple cycle. While wet combustion controls are available for GE LM6000 machines with a comparable uncontrolled NO_X emission rate to DLE, there would be a resultant increased heat rate as compared to use of the DLE technology. Furthermore, wet combustion controls consume water resources and do not provide lower NO_X emissions than dry controls. Therefore, while wet combustion controls are considered a feasible NO_X emission reduction technology for the CPGS, it will not be implemented into the combustion turbines provided for the CPGS project.

5.3.1.2.2 Dry Combustion Controls

There are two dry combustion control options for reducing NO_X emissions from combustion turbines:

1. DLE combustors
2. Catalytic combustors (e.g., XONON)

DLE Combustors: Combustion modifications that lower NO_X emissions without wet injection include lean combustion, reduced combustor residence time, lean premixed combustion, and two-stage rich/lean combustion. Lean combustion uses excess air (greater than stoichiometric air-to-fuel ratio) in the combustor primary combustion zone to cool the flame, thereby reducing the rate of thermal NO_X formation. Reduced combustor residence times are achieved by introducing dilution air between the combustor and the turbine sooner than with standard combustors. The combustion gases are at high temperatures for a shorter time, which also has the effect of reducing the rate of thermal NO_X formation.

The most advanced combustion control for NO_X formation are DLE combustors, a technology specific to GE for combustion turbines. DLE technology uses lean, premixed combustion to keep peak combustion temperatures low, thereby reducing the formation of thermal NO_X. Lean premix combustors have been developed for gas-fired turbines, and the more advanced designs are capable of achieving a 70 to 95 percent NO_X reduction with NO_X concentrations from 5 to 25 ppmvd @15%O_2. The CPGS combustion turbines will have DLE technology incorporated into the design.

Catalytic Combustors: One advertised type of dry combustion control is a catalytic combustor, such as Catalytica's XONON, which uses a catalyst inside the combustor where the air/fuel mixture passes through the catalyst as combustion occurs at much lower temperatures when compared to a standard combustor. This reduction in the combustion temperature greatly reduces the formation of thermal NO_X. Emissions of NO_X from catalytic combustors are typically less than 5 ppmvd @15%O_2.

In October 1998, Catalytica Combustion Systems demonstrated the XONON system on a 1.5-MW combustion turbine in Santa Clara, California. This system has achieved NO_X concentrations less than 3 ppm. Catalytic combustors have not been applied commercially to gas turbines in a larger size range.

The XONON system is not commercially available for the CPGS gas turbines or comparable equipment at this time. Therefore, this technology is not considered feasible for use on the CPGS combustion turbines and is eliminated in this BACT analysis.

5.3.1.2.3 Post-Combustion Controls

There are four post-combustion control options for reducing NO_X emissions from combustion turbines:

1. SCR
2. SNCR
3. NSCR
4. SCONO$_x$

SCR: SCR is a post-combustion technique that controls both thermal and fuel NO_X emissions by reducing NO_X with a reagent (generally NH_3 or urea) in the presence of a catalyst to form water and nitrogen. NO_X conversion is sensitive to exhaust gas temperature, and performance can be limited by contaminants in the exhaust gas that may mask the catalyst (sulfur compounds, PM, heavy metals, and silica). SCR is used in numerous gas turbine installations throughout the United States, almost exclusively in conjunction with other wet or dry NO_X combustion controls. SCR requires the consumption of a reagent (NH_3 or urea) and

requires periodic catalyst replacement. As NO_X emission rates have dropped, the level of sophistication has increased in terms of the NH_3 injection system and process controls.

The temperature range required for SCR is typically between approximately 600 and 900°F, with other catalyst variations being effective in a wider temperature range. If the SCR catalyst bed is not located in the proper temperature zone, either the reaction efficiency will be reduced if the temperature is too low, resulting in increased NH_3 slip, or the catalyst may be damaged if the temperature is too high.

During startup, the SCR is operational; however, NH_3 injection into the catalyst may not start until the temperature reaches a specific limit (approximately 600°F). The control effectiveness of the SCR is limited during the initial stages of the startup sequence due to decreased catalyst activity at lower temperatures and limitations on the amount of NH_3 that can be emitted.

SCR is capable of more than 90 percent NO_X removal; however, the use of SCR can result in secondary $PM_{10}/PM_{2.5}$ formation (ammonium nitrate or ammonium sulfate) and NH_3 slip emissions from the need to inject more NH_3 to the SCR than can be fully reacted. This technology is considered feasible for simple cycle combustion turbine operation at CPGS.

SNCR: SNCR involves injection of NH_3 or urea with proprietary conditioners into the exhaust gas stream without a catalyst. SNCR technology requires gas temperatures in the range of 1,600 to 2,000°F and is most commonly used in boilers. The exhaust temperatures for the CPGS gas turbines range between 850 and 950°F, which is less than the minimum SNCR operating temperature. Some method of exhaust gas heating, such as additional fuel combustion, would be required to achieve exhaust temperatures compatible with SNCR operations. While the SNCR NO_X reduction limit is approximately 60 percent, higher NO_X removal will be required for the CPGS project. Therefore, SNCR is not technologically feasible for the combustion turbines at CPGS.

NSCR: NSCR uses a catalyst without injected reagents to reduce NO_X emissions in an exhaust gas stream. NSCR is typically used in automobile exhaust and rich-burn stationary internal combustion engines and employs a platinum/rhodium catalyst. NSCR is effective only in a stoichiometric or fuel-rich environment where the combustion gas is nearly depleted of O_2, and this condition does not occur in turbine exhaust where the O_2 concentrations are typically between 14 and 16 percent. For this reason, NSCR is not technologically feasible for this application.

SCONO$_x$: SCONO$_x$ is a proprietary CatOx and adsorption technology that uses a single catalyst for the control of NO_X, CO, and VOC emissions. The catalyst is a monolithic design, made from a ceramic substrate with both a proprietary platinum-based oxidation catalyst and a potassium carbonate adsorption coating. The catalyst simultaneously oxidizes NO to NO_2, CO to CO_2, and VOCs to CO_2 and water, while NO_2 is adsorbed onto the catalyst surface where it is chemically converted to and stored as potassium nitrates and nitrites. The SCONOx potassium carbonate layer has a limited adsorption capacity and requires regeneration approximately every 12 to 15 minutes in normal service.

Estimates of control system efficiency vary. ABB Environmental has indicated that the SCONO$_x$ system is capable of achieving a 90 percent reduction in NO_X; a 90 percent reduction in CO to a level of 2 ppmvd @15%O_2; and an 80 to 85 percent reduction in VOC emissions.

SCONO$_x$ has not been installed on large turbines such as the combustion turbines proposed for the CPGS project. The feasibility of the "scale-up" of the SCONO$_x$ system for large turbines has not been demonstrated in practice. Therefore, SCONO$_x$ is not considered to be a technically viable NO_X control technology for CPGS.

Based on these discussions, the following NO_X control technologies are available and potentially technologically feasible for the CPGS:

- DLE Combustor Design (already incorporated into the CPGS combustion turbine design)
- SCR

5.3.1.3 Rank Remaining Control Technologies by Control Effectiveness

Because the CPGS combustion turbines will use DLE technology, the only remaining additional technically feasible control technology is SCR.

5.3.1.4 Available Control Options and Technical Feasibility

The following subsections summarize the SCR NO_X emission options considered for NO_X reduction in addition to the DLE technology incorporated in the CPGS simple cycle combustion turbine design.

5.3.1.4.1 Environmental Impacts

A potential environmental impact that may result from the use of SCR involves the storage and transport of aqueous NH_3. Although NH_3 is toxic if swallowed or inhaled and can irritate or burn the skin, eyes, nose, or throat, it is a commonly used material that is typically handled safely and without incident.

5.3.1.4.1.1 Ammonia Slip

The use of SCR will result in NH_3 emissions from each unit. NH_3 slip results because it is impossible to provide perfect mixing or an infinite residence time for the complete chemical reaction between the NH_3 and NO_X in an SCR unit. Theoretically, given perfect conditions, the stoichiometric amount of NH_3 could be added, resulting in complete reaction of all NO_X and all NH_3 molecules. In reality, because of imperfect reaction conditions and variable turbine operating conditions, a stoichiometric excess of NH_3 must be added to meet target NO_X emissions. This stoichiometric excess is emitted from the stack as NH_3 slip. Thus, there is an approximate inverse relationship between effluent NO_X and NH_3 concentrations. The only practical way to reduce NH_3 slip is to decrease the NH_3 feed rate, which will result in increased NO_X emissions, and/or increase the size or activity of the SCR catalyst.

The NH_3 emissions may have an environmental impact through their potential to form secondary PM such as ammonium sulfate and ammonium nitrate. Because of the complex nature of the chemical reactions and dynamics involved in the formation of secondary PM, it is difficult to estimate the amount of secondary PM that will be formed from the emission of a given amount of NH_3. However, the use of additional SCR catalyst could cause more formation of secondary particulate matter, thus potentially impacting the ability to meet target PM_{10} emissions.

NH_3 is a Wyoming state regulated air pollutant, and is neither a federally regulated pollutant, nor a HAP, nor a PSD regulated pollutant. Setting an NH_3 slip limit in the permit may inversely cause problematic NO_X increases by limiting the appropriate amount of NH_3 injected to control NO_X. Black Hills operations will be cognizant of using the appropriate level of NH_3 to control NO_X as it is an expensive reagent. Due to these operating conditions to maintain the NO_x limit, Black Hills proposes an NH_3 slip limit of 10 ppmvd @ 15%O_2.

5.3.1.4.1.2 Conclusion

The potential environmental impact due to aqueous NH_3 storage at the CPGS does not justify the elimination of SCR as a control alternative.

5.3.1.4.2 Energy Impacts

Use of an SCR system creates additional pressure drop in the turbine exhaust system to the stack. Typical pressure drop losses may be up to several inches of water for the combined CatOx and SCR system. As described previously, this can result in:

1. An increase in energy consumption, which will cause a reduction of net electrical generation due to increased parasitic load or backpressure
2. Reduced unit availability due to additional maintenance requirements for the applied control technology

5.3.1.5 Determination of BACT Emission Rates

The Wyoming BACT analysis performed for NO_X control includes review of recent BACT decisions for comparable sized natural gas-fired combustion turbines operating in simple cycle configurations.

5.3.1.5.1 Previous BACT Determinations

Table 5-1 provides the combustion turbines database searches for units operating in simple cycle. Information was compiled from the EPA RBLC information, combustion turbine manufacturers, and internet searches. From this table, the most stringent NO_X permit limit is 2.5 ppmvd @15%O_2 limitation, which is the Calcasieu Pass LNG Project in Louisiana and the Lone Star Power Station in Texas. The Lone Star Power Station is in Liberty County which is an Ozone Nonattainment area and the facility voluntarily accepted a LAER limit. The simple cycle unit for this Project has been constructed, and the emission limit has been demonstrated. The Calcasieu Pass unit NO_x limit is based on a 30-day rolling average, and the unit has a considerably higher CO limit of 21.6 lb/hr. Based on the details of these RBLC entries, 2.5 ppm should not be considered BACT for this source type. The NOx permit limit of 3.1 ppmvd @ 15%O_2 at the Lake Charles LNG Export Company, LLC in Louisiana is based on a 3-hour average. Black Hills plans to propose a NOx limit based on a 1-hour average. The difference in averaging period must be considered when setting the proposed BACT limit. In addition, Black Hills evaluated the economic feasibility of a 3 ppmvd NOx emissions limit. The results of the economic analysis, included in Appendix D, indicated a cost-effectiveness of $23,611 per ton of NOx removed, making a 3 ppmvd NOx emissions limit not economically feasible for the project.

5.3.1.5.2 Select BACT for Normal Operation

A NOx emission rate of 5.0 ppmvd @15%O_2 based on a 1 block hour averaging period is determined to be representative of BACT for this application. This is based on the following:

- BACT for existing turbines at the site has been determined to be 5 ppmvd @15% O_2 and is consistent with other similar recently permitted units.
- The installation of a SCR system capable of achieving 3 ppmvd is not economically feasible.
- Lower emission rates with the same averaging period have not been demonstrated in practice in NAAQS attainment areas.

However, driven by modeling requirements and the nearby ozone nonattainment area at the Wyoming–Colorado state line, Black Hills has committed to installing a more efficient SCR system and proposes to limit NOx emissions to 3.0 ppmvd @15%O_2 with an averaging period of 1 block hour for normal operation.

5.3.1.5.3 Simple Cycle Startup/Shutdown BACT Analysis

Black Hills has analyzed periods of operation, including periods of startup and shutdown, of the simple-cycle combustion turbines. The following sections provide an emissions review for combustion turbines operating in simple-cycle configuration for the CPGS application.

The combustion turbines are capable of executing a normal startup in as short as 10 minutes, and a normal shutdown in as little as 8 minutes. However, the simple-cycle combustion turbine system startup and shutdown durations are expected to sometimes be longer. Because SCR warmup may not be accomplished within 10 minutes, establishing a longer averaging period is especially important for determining a combustion turbine startup/shutdown emission permit limitation. For the CPGS project, the estimated simple cycle startup sequence of 20 minutes includes time for combustion turbine startup and ramp to full load, as well as a SCR catalyst warmup period. A simple cycle shutdown was estimated at 10 minutes.

Estimated startup and shutdown emissions were based upon the startup and shutdown information provided by GE, which are provided in **Appendix C**. Therefore, the simple cycle startup and shutdown emissions were calculated based on the following assumptions:

- NO_X, CO, and VOC startup emissions assume the control efficiency of the catalyst increases linearly from minute 11 through minute 20 of the startup.
- Shutdown emission values are calculated as ([emissions during final 8 minutes / 8 minutes]*2minutes + [emissions during final 8 minutes]).
- The combined startup/shutdown emission rate represents the 1-hour emission rate assuming two 20-minute turbine startups and two 10-minute turbine shutdowns.

For purposes of calculating hourly emissions for establishing a short-term 1-hour permit limit, two startups and two shutdowns were assumed. The annual emissions permit limit was calculated assuming 600 startups and 600 shutdowns, resulting in 300 hours of startup/shutdown, and 8,460 hours of normal operation.

The startup/shutdown BACT NO_X emission rate is recommended to be established at a total NO_X emission of 22.9 lb/hour for the turbines. Information regarding startup and shutdown of the simple cycle CPGS combustion turbines was based on data from combustion turbine vendors. **Appendix C** provides additional details about the emissions inventory.

5.3.1.6 Startup and Shutdown NO_X Permit Recommendations

To calculate the basis for the startup/shutdown NO_X emissions, the simple cycle scenario was assumed to consist of two startups (20 minutes each) and two shutdowns (10 minutes each) over a resultant 60-minute period. Note that, although use of the auxiliary boiler may potentially allow faster startup of the facility, full manufacturer's recommended startup time is used to be conservative as the purpose of the auxiliary boiler to allow for faster startups has not yet been proven in the field.

Table 5-2 outlines the proposed startup and shutdown NO_X emissions.

Table 5-2. CPGS Simple Cycle Combustion Turbine

Recommended Startup/Shutdown NO_X Emission Permit Limits

Permit Scenarios	Total Annual Average (lb/hr)	Total Annual (tpy)
Simple Cycle	22.9	3.4

Notes:

1. The simple cycle combined startup/shutdown emission rate represents the 1-hour emission rate assuming two 20-minute turbine startups and two 10-minute turbine shutdowns.
2. Tons/year based on 300 hours/year for simple cycle startup/shutdown.
3. Refer to Appendix C for additional startup and shutdown information.

5.3.1.6.1 CPGS Simple Cycle Combustion Turbines NO_X BACT Recommendation

Based on the analysis performed, the NO_X BACT recommendation is 5.0 ppmvd @15%O_2 (1-hour average) for normal operation in simple cycle mode. However, as discussed previously, a more stringent limit of 3.0 ppmvd @ 15% O_2 (1-hour average) is requested based on modeling requirements. The recommended NO_X BACT startup/shutdown emission value is 22.9 lb/hour (1-hour average). Please note that the CEMS can only calculate block hour data thus it is recommended that the permit define any block hour with recorded startup/shutdown (SUSD) data as an "SUSD hour." (One minute or more of SUSD = 1 SUSD hour).

5.3.2 Simple Cycle Combustion Turbine BACT for CO and VOC

Tables 5-4 and **5-5** provide a summary of available CO and VOC emission information for recently permitted and operating units in simple cycle.

5.3.2.1 Theoretical Formation and Control of CO and VOC

CO and VOC emissions are caused by incomplete fuel combustion, which can result from insufficient residence time at high temperature or incomplete mixing of fuel and air. In gas turbines, the use of dilution air as a NO_X control method and operation at low or medium loads can increase CO and VOC emissions. Thus, many NO_X control methods such as water/steam injection, lean combustion, and low flame temperatures can increase CO and VOC emissions. A good combustor design will minimize the formation of CO and VOC while reducing the combustion temperature and NO_X emissions.

Catalytic combustion could be used to balance the conflicting NO_x and CO/VOC control mechanisms during combustion. The system would use a flameless combustion system where fuel and air react on a catalyst surface, preventing the formation of NO_X while achieving low CO and VOC emission factors.

Finally, CatOx could be used to oxidize CO and VOC to CO_2 and water vapor after combustion. Catalysts for these systems usually include precious metals such as platinum, palladium, or rhodium. The oxidation reaction occurs without the need to add additional reactants.

5.3.2.2 Identify All Control Technologies

Potential CO and VOC control technologies for combustion turbines include the following:

- CatOx
- Catalytic Combustion (XONON)
- $SCONO_x$

5.3.2.2.1 Eliminate Technically Infeasible Options

CatOx: CatOx systems have a proven record at locations where BACT was required. Oxidation catalysts are considered to be technologically feasible.

Catalytic Combustion: The XONON system, manufactured by Catalytica, shows promise in future application for simultaneously reducing NO_X, CO, and VOC emissions. As discussed in the BACT section for NO_X, the XONON is not currently commercially available for large combustion turbines and, therefore, is not technically feasible for the CPGS.

$SCONO_x$: As discussed in the BACT evaluation for NO_X, the $SCONO_x$ system has limited demonstrated experience on comparably sized units and the feasibility of the "scale-up" of the $SCONO_x$ system for large turbines has not been demonstrated in practice. As a result, $SCONO_x$ is not considered to be a technically viable CO or VOC control technology for CPGS.

5.3.2.3 Rank Remaining Control Technologies by Control Effectiveness

The only remaining alternative is CatOx for the CPGS combustion turbines.

5.3.2.4 Available Control Options and Technical Feasibility

The following subsections summarize the selected CO emission level option for technically feasible CatOx systems after review of the recently permitted combustion turbines.

5.3.2.4.1 Economic Impacts

CatOx systems are considered economically feasible for controlling CO and VOC emissions from simple cycle combustion turbines.

5.3.2.4.2 Energy Impacts

Use of the CatOx system creates additional pressure drop in the turbine exhaust system to the stack. Typical losses may be up to several inches of water for the combined CatOx and SCR system. As described previously, this can result in 1) an increase in energy consumption, which will cause a reduction of net electrical generation resulting due to increased parasitic load or backpressure, and 2) reduced unit availability due to additional maintenance requirements for the applied control technology.

5.3.2.4.3 Environmental Impacts

The primary environmental impact associated with the use of an oxidation catalyst is an increase in $PM_{10}/PM_{2.5}$ emissions due to the additional oxidation of sulfur and NH_3 present in the combustion turbine exhaust gas. The combustion turbine oxidizes any sulfur compounds in the natural gas (either naturally occurring or added as an odorant) to SO_2. The SO_2 would be further oxidized to SO_3 across the oxidation

catalyst and would be emitted as a sulfate, which can combine with the NH_3 slip to form ammonium sulfate PM.

5.3.2.5 Determination of BACT Emission Rates

The BACT analysis performed for CO and VOC control includes the following:

- Review of published BACT guidelines for natural gas-fired simple cycle gas turbines
- Review of recent BACT decisions for natural gas-fired simple cycle gas turbines

5.3.2.5.1 Previous BACT Determinations for CO and VOC

CPGS Simple Cycle Combustion Turbines

The database search for similar combustion turbines operating in simple cycle configuration is shown in **Tables 5-3** and **5-4**. From review of **Table 5-3**, the most stringent CO emissions levels from the recently permitted projects was 5.0 ppmvd @15%O_2 based on a 4-hour average. CPGS will propose a CO BACT limit based on a shorter averaging period.

The lowest VOC permit value was 1 ppmvd for the Lone Star Power Station in Liberty County, Texas. Liberty County is designated nonattainment for ozone. Therefore the 1 ppmvd is a LAER limit instead of BACT limit. RBLC entries of 1.5 ppm and 1.7 ppmvd for VOC were also observed. Because the CPGS site is located at high elevation (5,940 feet above sea level) combustion efficiency is somewhat diminished as compared to turbines operating at a lower elevation such as Louisiana and Texas.

Table 5-3. NSR RACT/BACT/LAER Clearinghouse Database: BACT-PSD Sources for CO

Simple Cycle Turbines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	CO Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
LA-0383	Lake Charles LNG Export Company, LLC Export Terminal Calcasieu, LA	Turbines (EQT0020 – EQT0031)	508.8 511.3	MMBtu/hour	CatOx and CO turndown	10	PPMVD @ 15%O2	3-hour average, @ load => 50%	BACT-PSD	PSD-LA-838 09/03/2020
*TN-0187	Tennessee Valley Authority Johnsonville Humphreys, TN	Ten Simple Cycle NG Turbines	465.8	MMBtu/hour	oxidation catalyst	5	PPMVD @ 15%O2	4-hour rolling average excluding SUSD	BACT-PSD	979348 08/31/2022
TX-0933	Nacero TX 1, LLC Nacero Penwell Facility Ector, TX	Turbine	34.5	MW	Oxidization catalyst, good combustion practices and the use of gaseous fuel	9	PPMVD	15%O2	BACT-PSD	164137 PSDTX1594 GHGPSDTX207 11/17/2021
WY-0070	Black Hills Power, Inc.	Simple Cycle Turbines (EP03-EP05)	40	MW	Oxidation catalyst	6	PPMVD @15%O_2	1-hour average	BACT	CT-12636 8/28/2012

Table 5-4. NSR RACT/BACT/LAER Clearinghouse Database: BACT-PSD Sources for VOC

Simple Cycle Turbines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	VOC Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
TX-0933	Nacero TX 1, LLC Nacero Penwell Facility Ector, TX	Turbine	34.5	MW	Oxidization catalyst, good combustion practices and the use of gaseous fuel	1.7	PPMVD		BACT-PSD	164137 PSDTX1594 GHGPSDTX207 11/17/2021
LA-0331	VENTURE GLOBAL CALCASIEU PASS, LLC CALCASIEU PASS LNG PROJECT CAMERON, LA	Aeroderivative Simple Cycle Combustion Turbine	263	MMBtu/H	Proper Equipment Design, Proper Operation, and Good Combustion Practices.	1.5	PPMV	3 Hour Avg	BACT-PSD	PDS-LA-805 09/21/2018
*TX-0989	Entergy Texas Inc Lone Star Power Station Liberty, TX	Simple Cycle Gas Turbines			Oxidation catalyst and good combustion practices	1	PPMVD	15%O2 3-hour	LAER	177473, N316 03/17/2025
WY-0070	Black Hills Power, Inc.	Simple Cycle Turbines (EP03-EP05)	40	MW	Oxidation catalyst	3	PPMVD @15%O_2	3-hour average	BACT	CT-12636 8/28/2012

5.3.2.5.2 Select BACT for Normal Operation

CPGS Simple Cycle Combustion Turbines

The recommended BACT CO level for the CPGS simple cycle turbines is 6.0 ppmvd @15%O_2. Consistent with previous CPGS permit limits, this is proposed with an averaging period of 1 block hour for normal operation.

The recommended BACT VOC level for the CPGS simple cycle turbines is 3.0 ppmvd @15%O_2 for normal operation. VOC emission levels are highly dependent on site-specific factors, particularly natural gas composition and consumption, which introduces variability in the achievable VOC performance. Heavier hydrocarbons such as ethane, propane, and butanes can lead to higher VOC emissions. Natural gas composition at CPGS contains a higher-than-average ethane content. Due to potential variation in natural gas composition and considering the facility's site elevation impacts on VOC emissions, a BACT limit of 3.0 ppmvd @ 15% O_2 for VOC is recommended.

5.3.2.5.3 Startup/Shutdown Analysis

DEQ has communicated its desire to establish a permit limitation for CO during all periods of operation, including startup/shutdown, of the combustion turbines.

Information on startup/shutdown of the GE LM6000 PF simple cycle combustion turbines can be found in Appendix C.

5.3.2.6 Startup and Shutdown CO Permit Recommendations

In order to calculate the basis for the startup/shutdown CO emissions, the following scenarios were developed based on the combustion turbine operating in simple cycle. The simple cycle scenario consists of two startups (20 minutes each) and two shutdowns (10 minutes each) over a block hour. Note that, although use of the auxiliary boiler may potentially allow faster startup of the facility, full manufacturer's recommended startup time is used to be conservative as the purpose of the auxiliary boiler to allow for faster startups has not yet been proven in the field.

Table 5-5 provides the proposed startup and shutdown CO emissions.

Table 5-5. CPGS Simple Cycle Combustion Turbine

Recommended Startup/Shutdown CO Emission Permit Limits

Permit Scenarios	Total Annual Average (lb/hr)	Total Annual (tpy)
Simple Cycle	61.6	9.2

Notes:

1. The simple cycle combined startup/shutdown emission rate represents the 1-hour emission rate assuming two 20-minute turbine startups and two 10-minute turbine shutdown.
2. Tons/year based on 300 hours/year for simple cycle startup/shutdown.
3. Refer to Appendix C for additional startup and shutdown information.

5.3.2.6.1 CO and VOC BACT Recommendation

For CPGS combustion turbines operating in simple cycle, the CO BACT recommendation is 6 ppmvd @ 15% O_2 (1-hour average) for normal operation. The recommended CO BACT startup emission value is 61.6 lb/hour (1-hour average). The VOC BACT recommendation is 3.0 ppmvd @15%O_2 for normal operation. Please note that the CEMS can only calculate block hour data thus it is recommended that the permit define any block hour with recorded SUSD data as an "SUSD hour." (One minute or more of SUSD = 1 SUSD hour).

5.3.3 Combustion Turbine Wyoming BACT for SO_2

SO_2 control technology will be discussed for the reconfigured CPGS combustion turbines; however, this project is not major for SO_2.

5.3.3.1 Theoretical Formation and Control of SO_2

Emissions of sulfur oxides (SO_x) from gas-fired power plants result from combustion of natural gas in the combustion turbines. This sulfur is either naturally occurring in the natural gas or is in the odorant added to the natural gas. Combustion of the natural gas oxidizes all sulfur compounds to SO_x. The low concentration of sulfur compounds in this fuel results in very low SO_2 emission rates from this equipment.

5.3.3.2 Available Control Options and Technical Feasibility

No feasible add-on SO_2 controls have been used on pipeline quality natural gas-fired combustion turbines.

5.3.3.3 Determination of Wyoming BACT Emission Rates

A review of the EPA RACT/LAER/BACT clearinghouse for recent SO_2 BACT determinations for simple cycle combustion turbines has identified low sulfur pipeline quality natural gas as BACT for all of the recent project BACT determinations. The project's SO_2 emissions are directly proportional to the sulfur content of the pipeline quality natural gas the project will be burning. The project's use of low-sulfur pipeline quality natural gas is consistent with recent BACT determinations and is considered Wyoming BACT for the combustion turbine SO_2 emissions. No other controls exist for this class of emission sources.

Therefore, SO_2 Wyoming BACT for the CPGS simple cycle combustion turbines is pipeline natural gas (0.5 grains of sulfur/100 scf).

5.3.4 Simple Cycle Combustion Turbine BACT for PM, PM_{10}, and $PM_{2.5}$

This section outlines the simple cycle combustion turbine BACT for PM, PM_{10}, and $PM_{2.5}$.

5.3.4.1 Theoretical Formation and Control of Particulate Matter

Emissions of PM from natural gas combustion are normally negligible. These emissions are primarily a result of noncombustible trace particles present in the fuel. Particulate emissions can also result from dust particles present in inlet air. Both the fuel and the combustion air are filtered to remove PM to protect the turbine components from erosion. Therefore, the amounts of PM passed through the filters to the turbine are small and are dependent on the efficiency of the filtration devices that clean the fuel and inlet air. Particulate emissions of hydrocarbon resulting from incomplete combustion can result from liquid or solid fuels but are not a significant result of natural gas combustion. No feasible add-on control mechanisms

exist for controlling these emissions. Good combustion practices, efficient particle filtration, and clean fuels are the control methodologies that have been used for PM_{10} control for combustion turbines.

5.3.4.2 Available Control Options and Technical Feasibility

As mentioned previously, little more can be done to limit particulate emissions from natural gas combustion beyond filtering the inlet fuel and air, and the EPA does not consider particulate emissions a concern in this process. EPA confirms this in AP-42, Section 3.1, which acknowledges that "PM emissions are negligible with natural gas firing…" Particulate emissions are also not considered a concern in the New Source Performance Standard for Stationary Gas Turbines (40 CFR 60, Subpart KKKK), which requires no PM controls for gas turbines. EPA also made a statement in the promulgation portion of the New Source Performance Standard that reads "particulate emissions from stationary gas turbines are minimal" (Volume 44 *Federal Register* Number 52798 [44 FR52798], September 10, 1979).

From a review of previous permits for combustion turbine installations, no controls have been previously required to control PM emissions. Because particulate control equipment has not been installed, it is inferred that the state agency or EPA did not require it. As long as good combustion practices are performed, PM emissions are not considered to be a concern.

Turbine manufacturers' guarantees of particulate emissions are highly variable and depend on the anticipated natural gas quality, ambient dust concentrations, quality of water used for water injection or inlet air chillers (which increases the power plant efficiency, thus reducing emissions of other pollutants), and the amount of risk accepted by the manufacturer. Particulate emissions estimates are typically conservative due to the lack of feasible methods of control.

5.3.4.3 Determination of BACT Emission Rates

The BACT analysis performed for $PM_{10}/PM_{2.5}$ control includes the following:

- Review of published BACT guidelines for natural gas-fired combustion turbines
- Review of recent permits for natural gas-fired combustion turbines (**Table 5-6**)

5.3.4.3.1 Previous BACT Determinations for $PM/PM_{10}/PM_{2.5}$

Table 5-6 provides a review of recent comparably sized combustion turbine projects. Accepted PM control technology for these comparable projects was natural gas.

Table 5-6. NSR RACT/BACT/LAER Clearinghouse Database: BACT-PSD Sources for PM

Simple Cycle Turbines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	PM Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
AK-0085	Alaska Gasline Development Corporation Gas Treatment Plant North Slope Borough, AK	Six Simple Cycle Gas Turbines (Power Generation)	386	MMBtu/hour	Good Combustion Practices and burning clean fuels (NG)	0.007	Lb/ MMBtu	3-hour average	BACT-PSD	AQ1524CPT01 8/13/2020
IN-0261	Duke Energy Indiana, LLC Vermillion Generating Station Vermillion, IN	Simple cycle, natural gas-fired combustion turbines	80	MW	Good combustion practices	5	Lb/hr	Each turbine	BACT-PSD	165-36956-00022 02/28/2017
LA-0331	Venture Global Calcasieu Pass, LLC Calcasieu Pass LNG Project Calcasieu, LA	Aeroderivative Simple Cycle Combustion Turbine	263	MMBtu/hour	Exclusive combustion of fuel gas, good combustion practices, including proper burner design	4.5	Lb/hr	3-hour average	BACT-PSD	PDS-LA-805 09/21/2018

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	PM Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
MI-0454	Lansing Board of Water and Light LBWL-Erickson Station Eaton, MI	EUCTGSC1--A nominally rated 667 MMBtu/H natural gas-fired simple cycle CTG	667	MMBtu/hour	Pipeline quality natural gas, inlet air conditioning and good combustion practices	4.5	Lb/hr	hourly	BACT-PSD	74-18D 12/20/2022
*TN-0187	Tennessee Valley Authority Johnsonville Humphreys, TN	Ten Simple Cycle NG Turbines	465.8	MMBtu/hour	good combustion design and operating practices and the use of low sulfur fuel	3.65	Lb/hr		BACT-PSD	979348 08/31/2022
WY-0070	Black Hills Power, Inc.	Simple Cycle Turbines (EP03-EP05)	40	MW	SCR	4	Lb/hr	3-hour average	BACT	CT-12636 8/28/2012

5.3.4.3.2 Select BACT

Pipeline natural gas (0.5 grains of sulfur/100 scf) will be the only fuel used at the CPGS and is accepted as BACT for PM/PM_{10}/$PM_{2.5}$. The CPGS combustion turbines will emit no more than 4.0 pounds per hour of total particular matter, on a 3-hour rolling average basis at the maximum firing rate. The 4.0 lb/hr emission rate is based on the GE guarantee for LM6000 PF combustion turbines at the CPGS site.

Compliance will be determined by an emissions test with EPA Test Method 5 for filterable particulate, and Test Method 202 for condensable particulates.

5.4 Wärtsilä Engine BACT

This section summarizes Wärtsilä engine BACT.

5.4.1 Combustion Engine BACT for NO_X

Black Hills is proposing to install 24 new Wärtsilä engines at the CPGS facility.

Table 5-7 provides a summary of Wärtsilä18V50SG combustion engines from the RBLC, which have been recently permitted and operating. Permit information for each comparable unit was reviewed to determine permitted emission levels and determined control technologies. In addition, the location of the facility was evaluated to determine whether the site was in an attainment or nonattainment area. For those sites in a nonattainment area, the affected pollutant analysis was considered to be a LAER review instead of BACT. A NO_X catalyst is a typical control technology for both LAER and BACT determinations; the level of emissions control is generally greater for the LAER units.

Table 5-7. NSR RACT/BACT/LAER Clearinghouse Database BACT-PSD Sources for NO_X

Combustion Engines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	NO_X Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
MI-0440	Michigan State University Ingham, MI	FG Engines	16,500	HP	SCR	0.5	g/hp-hr	Hourly except SUSD	BACT-PSD	139-18 05/22/2019
MI-0459	Lansing Board of Water and Light Delta Energy Park Eaton, MI	FG Engines	29,147	BHP	SCR, lean burn combustion	0.5	g/b-hp-hr	Hourly except SUSD	BACT-PSD	71-24 06/27/2024

5.4.1.1 Identify All Control Technologies

Two potentially feasible control technologies have been identified for control of NO_X:

1. SCR
2. NSCR

5.4.1.1.1 Eliminate Technically Infeasible Options

SCR is a post-combustion technique that controls both thermal and fuel NO_X emissions by reducing NO_X with a reagent (generally NH_3 or urea) in the presence of a catalyst to form water and nitrogen. NO_X conversion is sensitive to exhaust gas temperature, and performance can be limited by contaminants in the exhaust gas that may mask the catalyst (sulfur compounds, PM, heavy metals, and silica). SCR is used in numerous gas engine installations throughout the United States, often in conjunction with good combustion practices. SCR requires the consumption of a reagent (NH_3 or urea) and requires periodic catalyst replacement. As NO_X emission rates have dropped, the level of sophistication has increased in terms of the NH_3 injection system and process controls.

The temperature range required for SCR is typically between approximately 600 and 900°F, with other catalyst variations being effective in a wider temperature range. If the SCR catalyst bed is not located in the proper temperature zone, either the reaction efficiency will be reduced if the temperature is too low, resulting in increased NH_3 slip, or the catalyst may be damaged if the temperature is too high.

During startup, the SCR is operational; however, NH_3 injection into the catalyst may not start until the temperature reaches a specific limit (approximately 600°F). The control effectiveness of the SCR is limited during the initial stages of the startup sequence due to decreased catalyst activity at lower temperatures and limitations on the amount of NH_3 that can be emitted.

SCR is capable of more than 90 percent NO_X removal; however, the use of SCR can result in secondary $PM_{10}/PM_{2.5}$ formation (ammonium nitrate or ammonium sulfate) and NH_3 slip emissions from the need to inject more NH_3 to the SCR than can be fully reacted. This technology is considered feasible for Wärtsilä RICE operation at CPGS.

NSCR uses a catalyst without injected reagents to reduce NO_X emissions in an exhaust gas stream. NSCR is typically used in automobile exhaust and rich-burn stationary internal combustion engines and employs a platinum/rhodium catalyst. NSCR is effective only in a stoichiometric or fuel-rich environment where the combustion gas is nearly depleted of O_2, and this condition does not occur in engine exhaust where the O_2 concentrations are typically between 14 and 16 percent. For this reason, NSCR is not technologically feasible for this application.

5.4.1.2 Rank Remaining Control Technologies by Control Effectiveness

Based on this discussion, the only additional technically feasible control technology is SCR.

5.4.1.3 Available Control Options and Technical Feasibility

The following subsections summarize the SCR NO_X emission option considered for NO_X reduction.

5.4.1.3.1 Economic Impacts

SCR systems are considered economically feasible for controlling NO_X emissions from Wärtsilä RICE.

5.4.1.3.2 Environmental Impacts

A potential environmental impact that may result from the use of SCR involves the storage and transport of aqueous NH_3. Although NH_3 is toxic if swallowed or inhaled and can irritate or burn the skin, eyes, nose, or throat, it is a commonly used material that is typically handled safely and without incident.

5.4.1.3.2.1 Ammonia Slip

The use of SCR will result in NH_3 emissions from each unit. NH_3 slip results because it is impossible to provide perfect mixing or an infinite residence time for the complete chemical reaction between the NH_3 and NO_X in an SCR unit. Theoretically, given perfect conditions, the stoichiometric amount of NH_3 could be added, resulting in complete reaction of all NO_X and all NH_3 molecules. In reality, because of imperfect reaction conditions and variable engine operating conditions, a stoichiometric excess of NH_3 must be added to meet target NO_X emissions. This stoichiometric excess is emitted from the stack as NH_3 slip. Thus, there is an approximate inverse relationship between effluent NO_X and NH_3 concentrations. The only practical way to reduce NH_3 slip is to decrease the NH_3 feed rate, which will result in increased NO_X emissions, and/or increase the size or activity of the SCR catalyst.

The NH_3 emissions may have an environmental impact through their potential to form secondary PM such as ammonium sulfate and ammonium nitrate. Because of the complex nature of the chemical reactions and dynamics involved in the formation of secondary PM, it is difficult to estimate the amount of secondary PM that will be formed from the emission of a given amount of NH_3. However, the use of additional SCR catalyst could cause more formation of secondary particulate matter, thus potentially impacting the ability to meet target PM_{10} emissions.

NH_3 is a Wyoming state regulated air pollutant, and is neither a federally regulated pollutant, nor a HAP, nor a PSD regulated pollutant. Setting an NH_3 slip limit in the permit may inversely cause problematic NO_X increases by limiting the appropriate amount of NH_3 injected to control NO_X. Black Hills operations will be cognizant of using the appropriate level of NH_3 to control NO_X as it is an expensive reagent.

Conclusion

The potential environmental impact due to aqueous NH_3 storage at the CPGS does not justify the elimination of SCR as a control alternative.

5.4.1.3.3 Energy Impacts

Use of an SCR system creates additional pressure drop in the engine exhaust system to the stack. Typical pressure drop losses may be up to several inches of water for the combined CatOx and SCR system. As described previously, this can result in

1. An increase in energy consumption, which will cause a reduction of net electrical generation due to increased parasitic load or backpressure
2. Reduced unit availability due to additional maintenance requirements for the applied control technology

5.4.1.4 Determination of BACT Emission Rates

The Wyoming BACT analysis performed for NO_X control includes review of recent BACT decisions for comparable sized natural gas-fired combustion engines.

5.4.1.4.1 Previous BACT Determinations

The combustion engines database searches for the natural gas-fired combustion engines are shown in **Table 5-10**. Information was compiled from the EPA RBLC information, combustion engine manufacturers, and internet searches. From this table, the most stringent NO_X permit limit is a 0.5 g/hp-hr limitation, which is Michigan State University in Michigan and the Delta Energy Park in Michigan.

5.4.1.4.2 Select BACT for Normal Operation

The BACT NO_X emission rate for the combustion engine units at CPGS is recommended at 0.04 g/hp-hr. Consistent with previous CPGS permit limits, this is proposed with an averaging period of 3 block hour for normal operation.

5.4.1.4.3 Startup/Shutdown BACT Analysis

Black Hills has analyzed periods of operation, including periods of startup and shutdown, of the combustion engines. The engine shutdown periods were determined to be very short in duration, approximately one minute, and result in minimal emissions; therefore, specific shutdown limitations are not warranted.

The engines are capable of executing a normal startup in as short as 30 minutes.

Estimated startup emissions were based upon the startup information provided by Wärtsilä, which are provided in **Appendix C**.

The annual startup emissions limit was calculated assuming 1,000 startups, resulting in 500 hours of startup time.

Startup BACT is recommended to be established as a limit of 1,000 startups per year per unit. **Appendix C** provides additional details about the emissions inventory.

5.4.1.5 Startup NO_X Permit Recommendations

Tables 5-8 provides the proposed startup NO_X emissions.

Table 5-8. CPGS Wärtsilä Combustion Engine
Recommended Startup NO_X Emission Permit Limits

Permit Scenarios	Total Startups (events)
Wärtsilä 18V50SG	1,000

Notes:

1. Refer to Appendix C for additional startup and shutdown information.

5.4.1.5.1 CPGS Combustion Engines NO_X BACT Recommendation

Based on the analysis performed, the NO_X BACT recommendation is 0.04 g/hp-hr (3-hour average) for normal operation.

5.4.2 Combustion Engine BACT for CO and VOC

Tables 5-11 and **5-12** provide a summary of available CO and VOC emission information for recently permitted and operating units.

5.4.2.1 Theoretical Formation and Control of CO and VOC

CO and VOC emissions are caused by incomplete fuel combustion, which can result from insufficient residence time at high temperature or incomplete mixing of fuel and air. In gas engines, the use of dilution air as a NO_X control method and operation at low or medium loads can increase CO and VOC emissions. Thus, many NO_X control methods such as lean combustion and low flame temperatures can increase CO and VOC emissions. A good combustor design will minimize the formation of CO and VOC while reducing the combustion temperature and NO_X emissions.

CatOx could be used to oxidize CO and VOC to CO_2 and water vapor after combustion. Catalysts for these systems usually include precious metals such as platinum, palladium, or rhodium. The oxidation reaction occurs without the need to add additional reactants.

5.4.2.2 Identify All Control Technologies

Two potentially feasible control technologies have been identified for control of CO and VOC:

1. CatOx
2. Good combustion practice/pipeline natural gas

5.4.2.2.1 Eliminate Technically Infeasible Options

CatOx is a post-combustion control device that would be applied to the combustion system exhaust, while good combustion practices are part of the combustion system design.

5.4.2.3 Rank Remaining Control Technologies by Control Effectiveness

The only alternative is CatOx for the CPGS combustion engines.

5.4.2.4 Available Control Options and Technical Feasibility

The following subsections summarize the CatOx CO emission option considered for CO reduction after review of the recently permitted combustion engines.

5.4.2.4.1 Economic Impacts

CatOx systems are considered economically feasible for controlling CO emissions from Wärtsilä RICE.

5.4.2.4.2 Energy Impacts

Use of the CatOx system creates additional pressure drop in the engine exhaust system to the stack. Typical losses may be up to several inches of water for the combined CatOx and SCR system. As described previously, this can result in:

1. An increase in energy consumption, which will cause a reduction of net electrical generation resulting due to increased parasitic load or backpressure

2. Reduced unit availability due to additional maintenance requirements for the applied control technology

5.4.2.4.3 Environmental Impacts

The primary environmental impact associated with the use of an oxidation catalyst is an increase in $PM_{10}/PM_{2.5}$ emissions due to the additional oxidation of sulfur and NH_3 present in the combustion engine exhaust gas. The combustion engine oxidizes any sulfur compounds in the natural gas (either naturally occurring or added as an odorant) to SO_2. The SO_2 would be further oxidized to SO_3 across the oxidation catalyst and would be emitted as a sulfate, which can combine with the NH_3 slip to form ammonium sulfate PM.

5.4.2.5 Determination of BACT Emission Rates

The BACT analysis performed for CO and VOC control includes the following:

- Review of published BACT guidelines for natural gas-fired combustion engines
- Review of recent BACT decisions for natural gas-fired combustion engines

5.4.2.5.1 Previous BACT Determinations for CO and VOC

This section describes the previous BACT determinations for CO and VOC.

CPGS Combustion Engines

The database search for similar combustion engines is shown in **Tables 5-9** and **5-10**. From review of **Table 5-11**, the most stringent CO emissions levels from the recently permitted projects was 0.3 g/hp-hr. From **Table 5-12**, the most stringent VOC emissions levels from the recently permitted projects was 4.49 lb/hr.

Table 5-9. NSR RACT/BACT/LAER Clearinghouse Database: BACT-PSD Sources for CO

Combustion Engines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	CO Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
MI-0440	Michigan State University Ingham, MI	FG Engines	16,500	HP	Oxidation catalyst	0.3	g/hp-hr	Hourly except SUSD	BACT-PSD	139-18 05/22/2019
MI-0459	Lansing Board of Water and Light Delta Energy Park Eaton, MI	FG Engines	29,147	BHP	CatOx, good combustion practices	0.3	g/b-hp-hr	Hourly except SUSD	BACT-PSD	71-24 06/27/2024
WI-0314	Wisconsin Public Service Corporation Weston Plant Marathon, WI	RICE (P101-P107)	152.3	MMBtu/hour	Use of good combustion practices and use of oxidation catalyst	4.43 14	Lb/hr PPMVD	15%O2, 1-hour avg basis	BACT-PSD	21-RAB-082 03/10/2022

Table 5-10. NSR RACT/BACT/LAER Clearinghouse Database: BACT-PSD Sources for VOC

Combustion Engines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	VOC Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
FL-0370	City of Tallahassee Arvah B. Hopkins Generating Station Leon, FL	18.82 MW SI Internal Combustion Engine Unit	161.4	MMBtu/hour	Oxidation catalyst for each engine	4.92 3.60	Lb/hr	At 70% and 100% load At 40% load	BACT-PSD	0730003-018-AC (PSD-FL-441A) 04/03/2019
MI-0440	Michigan State University Ingham, MI	FG Engines	16,500	HP	Oxidation catalyst	11	Lb/hr	Each engine, hourly except SUSD	BACT-PSD	139-18 05/22/2019
MI-0459	Lansing Board of Water and Light Delta Energy Park Eaton, MI	FG Engines	29,147	BHP	CatOx, good combustion practices	20	Lb/hr	Hourly; including formaldehyde	BACT-PSD	71-24 06/27/2024
WI-0314	Wisconsin Public Service Corporation Weston Plant Marathon, WI	RICE (P101-P107)	152.3	MMBtu/hour	Use of good combustion practices and use of an oxidation catalyst	4.49	Lb/hr		BACT-PSD	21-RAB-082 03/10/2022

5.4.2.5.2 Select BACT for Normal Operation

CPGS Combustion Engines

The recommended BACT CO level for the CPGS combustion engines is 0.11 g/hp-hr. Consistent with previous CPGS permit limits, this is proposed with an averaging period of 3 block hour for normal operation.

The recommended BACT VOC level for the CPGS combustion engines is 8.1 lb/hr with an averaging period of 3 block hours for normal operation due to potential natural gas composition and CPGS site elevation impacts on VOC emissions discussed in the CT BACT section previously.

5.4.2.5.3 Startup Analysis

DEQ has previously communicated its desire to establish a permit limitation for CO during all periods of operation, including startup of the engines.

Information on startup of the combustion engines can be found in Appendix C.

5.4.2.6 Startup CO Permit Recommendations

The engine shutdown periods were determined to be very short in duration, approximately one minute, and result in minimal emissions; therefore, specific shutdown limitations are not warranted. The engines are capable of executing a normal startup in as short as 30 minutes.

Estimated startup emissions were based upon the startup information provided by Wärtsilä, which are provided in **Appendix C**.

The annual startup emissions limit was calculated assuming 1,000 startups, resulting in 500 hours of startup.

Startup BACT is recommended to be established as a limit of 1,000 startups per year per unit. Additional details can be found in the Emissions Inventory in **Appendix C**.

Table 5-11 shows the proposed startup CO emissions.

Table 5-11. CPGS Combustion Engine
Recommended Startup CO Permit Limits

Permit Scenarios	Total Startups (events)
Wärtsilä 18V50SG	1,000

Notes:

1. Refer to Appendix C for additional startup and shutdown information.

5.4.2.6.1 CO and VOC BACT Recommendation

For CPGS combustion engines, the CO BACT recommendation is 0.11 g/hp-hr (3-hour average) for normal operation. The VOC BACT recommendation is 8.1 lb/hr for normal operation.

5.4.3 Combustion Engine Wyoming BACT for SO_2

This section outlines the combustion engine Wyoming BACT for SO_2.

5.4.3.1 Theoretical Formation and Control of SO_2

Emissions of sulfur oxides (SO_x) from gas-fired power plants result from combustion of natural gas in the combustion engines. This sulfur is either naturally occurring in the natural gas or is in the odorant added to the natural gas. Combustion of the natural gas oxidizes all sulfur compounds to SO_x. The low concentration of sulfur compounds in this fuel results in very low SO_2 emission rates from this equipment.

5.4.3.2 Available Control Options and Technical Feasibility

No feasible add-on SO_2 controls have been used on pipeline quality natural gas-fired combustion engines.

5.4.3.3 Determination of Wyoming BACT Emission Rates

The project's SO_2 emissions are directly proportional to the sulfur content of the pipeline quality natural gas the project will be burning. The project's use of low-sulfur pipeline quality natural gas is considered Wyoming BACT for the combustion engine SO_2 emissions. No other controls exist for this class of emission sources.

Therefore, SO_2 Wyoming BACT for the CPGS combustion engines is pipeline natural gas (0.5 grains of sulfur/100 scf).

5.4.4 Combustion Engine BACT for PM, PM_{10}, and $PM_{2.5}$

This section outlines the combustion engine BACT for PM, PM_{10}, and $PM_{2.5}$.

5.4.4.1 Theoretical Formation and Control of Particulate Matter

Emissions of PM from natural gas combustion are normally negligible. These emissions are primarily a result of noncombustible trace particles present in the fuel. Particulate emissions can also result from dust particles present in inlet air. Both the fuel and the combustion air are filtered to remove PM to protect the engine components from erosion. Therefore, the amounts of PM reaching the combustion engine are minimal and is largely influenced by the effectiveness of intake air filtration systems. Particulate emissions of hydrocarbon resulting from incomplete combustion can result from liquid or solid fuels but are not a significant result of natural gas combustion. No feasible add-on control mechanisms exist for controlling these emissions. Good combustion practices, efficient particle filtration, and clean fuels are the control methodologies that have been used for PM_{10} control for combustion engines.

5.4.4.2 Available Control Options and Technical Feasibility

As mentioned previously, little more can be done to limit particulate emissions from natural gas combustion beyond filtering the inlet fuel and air, and the EPA does not consider particulate emissions a concern in this process. EPA confirms this in AP-42, Section 3.2, which acknowledges that "Emission of PM from natural gas-fired reciprocating engines are generally minimal…" Particulate emissions are also not considered a concern in the New Source Performance Standard for Stationary Spark Ignition Internal Combustion Engines (40 CFR 60, Subpart JJJJ), which requires no PM controls for gas engines.

From a review of previous permits for combustion engine installations, no controls have been previously required to control PM emissions. Because particulate control equipment has not been installed, it is inferred that the state agency or EPA did not require it. As long as good combustion practices are performed, PM emissions are not considered to be a concern.

Engine manufacturers' guarantees of particulate emissions are highly variable and depend on the anticipated natural gas quality, ambient dust concentrations, and the amount of risk accepted by the manufacturer. Particulate emissions estimates are typically conservative due to the lack of feasible methods of control.

5.4.4.3 Determination of BACT Emission Rates

The BACT analysis performed for $PM_{10}/PM_{2.5}$ control includes the following:

- Review of published BACT guidelines for natural gas-fired combustion engines
- Review of recent permits for natural gas-fired combustion engines (**Table 5-14**)

5.4.4.3.1 Previous BACT Determinations for $PM/PM_{10}/PM_{2.5}$

A review of recent comparably sized combustion engine projects is summarized in **Table 5-12**. Accepted PM control technology for these comparable projects was natural gas.

5.4.4.3.2 Select BACT

Pipeline natural gas (0.5 grains of sulfur/100 scf) will be the only fuel used at the CPGS and is accepted as BACT for $PM/PM_{10}/PM_{2.5}$. The CPGS combustion engines will emit no more than 3.6 lb/hr of total particular matter on a 3-hour rolling average basis at the maximum firing rate.

Compliance will be determined by an emissions test with EPA Test Method 5 (2020) for filterable particulate, and Test Method 202 for condensable particulates.

Table 5-12. NSR RACT/BACT/LAER Clearinghouse Database: BACT-PSD Sources for PM

Combustion Engines Firing Natural Gas

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	PM Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
MI-0440	Michigan State University Ingham, MI	FG Engines	16,500	hp	Natural gas and good combustion practices	3	Lb/hr	Each eng/hourly/except SUSD	BACT-PSD	139-18 05/22/2019
MI-0459	Lansing Board of Water and Light Delta Energy Park Eaton, MI	FG Engines	29,147	BHP	Good combustion practices	4	Lb/hr	Hourly	BACT-PSD	71-24 06/27/2024
WI-0314	Wisconsin Public Service Corporation – Weston Plant Marathon, WI	RICE (P101-P107)	152.3	MMBtu/hour	Use of good combustion practices and use of pipeline quality natural gas	2.37	Lb/hr		BACT-PSD	21-RAB-082 03/10/2022

5.5 Inlet Air Heater Wyoming BACT

The CPGS project proposes to add three inlet air heaters; each with estimated heat input of 16.07 MMBtu/hour.

5.5.1 Inlet Air Heater NO_x Wyoming BACT Analysis

This section provides an analysis of the inlet air heater NOx Wyoming BACT.

5.5.1.1 Identify All Control Technologies

The first step is to evaluate NO_x controls determined to be BACT by permitting agencies across the United States. This information is available from the EPA RBLC database. A broad range of other information sources were also reviewed in an effort to identify all potentially applicable emission control technologies.

Potential NO_x control technology options are:

- LNB
- Good combustion practice/pipeline natural gas
- SCR

5.5.1.2 Eliminate Technically Infeasible Options

LNB limits NO_x formation by controlling the amount of fuel and air introduced in the primary combustion zone. Good combustion practice also consists of controlling the amount of air available for the combustion process, and the use of clean burning natural gas.

LNB and good combustion practice are listed in the RBLC for natural gas-fired heaters, and both are technically feasible control options.

SCR consists of a post-combustion NO_x reduction technology, which uses a catalyst preceded with NH_3 injection. While SCR may be technically feasible for further reduction of NO_x, no SCR systems have been permitted on small natural gas process heaters. Therefore, SCR will not be further considered for NO_x control for the inlet air heaters.

5.5.1.3 Rank Remaining Control Technologies by Control Effectiveness

Based on the Step 2 analysis, LNB and good combustion practices are the only technologies for this application.

5.5.1.4 Evaluate Most Effective Controls and Document Results

LNB technology is being considered for this project, so the environmental, energy, and economic impacts must be examined. No environmental costs and minimal energy costs are associated with LNB.

The next control technology in the hierarchy is good combustion practice. No environmental or energy costs are associated with good combustion practice for an inlet air heater.

5.5.1.4.1 Economic Evaluation

The CPGS intends to use three inlet air heaters rated at 16.07 MMBtu/hour each. The inlet heater manufacturer provided LNBs with emissions of 9 ppm @ 3% O_2.

5.5.1.5 Select BACT

The final step in the top-down BACT analysis process is to select BACT. EPA's RACT/BACT/LAER Clearinghouse (RBLC), a database of past technology decisions, was again consulted to assist in selecting BACT for this project. Recent NO_x limits for small natural gas-fired process equipment are shown in **Table 5-15**. BACT will consist of utilizing good combustion practices and pipeline quality natural gas, and LNBs. From review of the RBLC information, the lowest NO_x emission rate was 0.011 lb/MMBtu at the Colbert Combustion Turbine Plant in Colbert, AL. It should be noted that the application for that project states that 0.011 lb/MMBtu is equivalent to 9 ppmvd at 3% O_2. Therefore, BACT for the inlet air heaters is LNBs with a control level of 9 ppmvd at 3% O_2 or 0.012 lb/MMBtu. This is in line with the previous BACT determination for inlet air heaters at CPGS.

5.5.2 Inlet Air Heater CO and VOC Wyoming BACT Analyses

This section provides an analysis of the inlet air heater CO and VOC Wyoming BACT.

5.5.2.1 Identify All Control Technologies

Two potentially feasible control technologies have been identified for control of CO and VOC:

1. CatOx
2. Good combustion practice/pipeline natural gas

CatOx is a post-combustion control device that would be applied to the combustion system exhaust, while good combustion practices are part of the combustion system design.

5.5.2.2 Eliminate Technically Infeasible Options

Implementation of good combustion controls is a technically feasible control strategy. Implementation of add-on controls, such as CatOx, has been used to reduce CO/VOC emissions from natural gas-fired boilers and combustion turbines; however, post-combustion controls have not been identified as BACT for small natural gas-fired process heaters.

A CatOx system typically consists of a passive reactor fitted with a honeycomb grid of metal panels and coated with a precious metal catalyst (usually platinum, palladium, or rhodium). The catalyst promotes the oxidation of CO and VOCs to CO_2 and water at temperatures lower than would be necessary for oxidation without a catalyst.

The inlet air heater is an indirect natural gas-fired process heater; therefore, combustion gases do not mix with or exhaust to the atmosphere with any gases emanating from the process. The fire tube within the heater transfers heat released by the natural gas burners to a media, typically oil or water, which in turn transfers heat to the process gas (fuel gas) through the process coils submerged in the media. Based on information from heater vendors, indirect process heater exhaust temperatures do not fall within the temperature window needed to support a CO catalyst control system. Based on a review of the RBLC database and inquiries of heater vendors, it is concluded that a CatOx system is not commercially available for the inlet air heater.

5.5.2.3 Rank Remaining Control Technologies by Control Effectiveness

Based on the Step 2 analysis, good combustion practice and use of pipeline natural gas are the only technologies for this application.

5.5.2.4 Evaluate Most Effective Controls and Document Results

Implementation of proper burner design to achieve good combustion efficiency in heaters will minimize the generation of CO. Good combustion efficiency relies on both hardware design and operating procedures. Satisfactory burner design provides proper residence time, temperature, and combustion zone turbulence when used in combination with proper control of the air-to fuel ratio. Combustion modifications designed to control CO/VOC emissions could result in higher NO_x emissions. However, proper burner design and operation should limit CO and VOC emissions while controlling the average NO_x emission rate. Other than the CO/VOC and NO_x trade-off, there are no other environmental issues related to combustion controls.

5.5.2.5 Select BACT

The EPA RBLC database search results for comparable sources related to CO and VOCs is shown in **Table 5-13** and **Table 5-14**. The final step in the top-down BACT analysis process is to select BACT. BACT will consist of minimizing CO and VOC emissions by using pipeline quality natural gas and utilizing good combustion control practices.

Good combustion practices and use of pipeline natural gas offer the potential for the lowest controlled CO emission rate from the inlet air heaters. The CPGS intends to use three inlet heaters rated at 16.07 MMBtu/hour each, and the manufacturer provided CO emissions of 50 ppmvd @ 3% O_2. Utilizing manufacture's data, CO calculated emissions are 0.59 lb/hr (0.037 lb/MMBtu) per inlet heater.

VOC emissions based on AP-42 factors were estimated at 0.09 lb/hr per heater.

From review of the RBLC information for natural gas process equipment, CO emission rates range from 0.04 to 0.08 lb/MMBtu with several installations at 0.08 lb/MMBtu. Black Hills Energy is recommending that the selected technology with a 50-ppm control option be selected as BACT for this project. Therefore, CO BACT for the CPGS is 50 ppmvd @ 3% O_2 or 0.04 lb/MMBtu. This is in line with other BACT determinations for similar sources.

Table 5-13. Natural Gas-fired Process Equipment – NO_x Emissions

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	NO_x Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
AR-0171	Nucor Corporation Nucor Steel Arkansas	SN-233 Galvanizing Line Boilers	15	MMBtu/hour	LNBs	0.1	Lb/MMBtu	3-hour	BACT-PSD	1139-AOP-R24 02/14/2019
IN-0371	Wabash Valley Resources, LLC Vigo, IN	Auxiliary Boiler (AB-3)	20	MMBtu/hour	LNBs and Good Combustion Practices	35	Lb/MMSCF		BACT-PSD	167-45208-00091 01/11/2024
MI-0442	Thomas Township Energy, LLC Saginaw, MI	FGPREHEAT	7	MMBtu/hour	Good combustion practices and LNBs	0.036	Lb/MMBtu	Hourly; each unit	BACT-PSD	210-18 08/21/2019
OH-0374	Guernsey Power Station LC Guernsey, OH	Fuel Gas Heaters (2 identical, P007 and P008)	15	MMBtu/hour	Low NOx gas burner	0.3 1.31	Lb/hr T/yr	Per rolling 12-month period	BACT-PSD	P0122594 10/23/2017
OH-0379	Petmin USA Incorporated Ashtabula, OH	Startup boiler (B001)	15.17	MMBtu/hour	LNBs, good combustion practices and the use of natural gas	0.634 2.78	Lb/hr T/yr	Per rolling 12-month period	BACT-PSD	P0125024 02/06/2019

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	NO_x Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
WI-0306	WPL – Riverside Energy Center Rock, WI	Temporary Boiler (B98A)	14.67	MMBtu/hour	LNBs, flue gas recirculation, shall be operated for no more than 500 hours, and shall combust only pipeline quality natural gas.	0.04	Lb/MMBtu	Avg. over any consecutive 3-hour period	BACT-PSD	19-POY-212 02/28/2020
*WI-0326	Nemadji Trail Energy Center Douglas, WI	Heaters: S04/P04 and S05/P05	10	MMBtu/hour	a. P04 and P05 shall be equipped with LNBs. b. Only pipeline quality natural gas may be combusted in P04 and P05. c. The permittee shall operate and maintain P04 and P05 according to the manufacturer's recommendations. d. The permittee shall tune within 120 days of the initial operation, and within 24 months of each preceding tune-up. e. NOx emissions from P04 and P05 may not exceed 0.049 lb/MMBtu each.	0.049	Lb/MMBtu		BACT-PSD	21-JAM-212 09/19/2023

Table 5-14. Natural Gas-fired Process Equipment – CO Emissions

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	CO Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
AL-0307	Constellium Alloys Plant Colbert, AL	Package Boiler	17.5	MMBtu/hour	GCP	0.08	Lb/MMBtu		BACT-PSD	701-0007-X121-X126 10/09/2015
AR-0171	Nucor Corporation Nucor Steel Arkansas	SN-233 Galvanizing Line Boilers	15	MMBtu/hour	Good combustion practices	0.084	Lb/MMBtu		BACT-PSD	1139-AOP-R24 02/14/2019
MI-0420	DTE Gas Company Milford Compressor Station Oakland, MI	FGAUXBOILERS	6	MMBtu/hour	Good combustion practices and clean burn fuel (pipeline quality natural gas)	0.08	Lb/MMBtu		BACT-PSD	185-15 06/03/2016
MI-0442	Thomas Township Energy, LLC Saginaw, MI	FGPREHEAT	7	MMBtu/hour	Good combustion practices	0.037	Lb/MMBtu		BACT-PSD	210-18 08/21/2019
OH-0374	Guernsey Power Station LC Guernsey, OH	Fuel Gas Heaters (2 identical, P007 and P008)	15	MMBtu/hour	Combustion control	0.83 3.64	Lb/hr T/yr	Per rolling 12-month period	BACT-PSD	P0122594 10/23/2017

RBLCID	Company Name and Location	Process Name	Throughput	Throughput Unit	Control Method Description	CO Emission Limit	Units	Averaging Time	Case by Case	Permit Number and Permit Date
OH-0379	Petmin USA Incorporated Ashtabula, OH	Startup boiler (B001)	15.17	MMBtu/hour	good combustion practices and the use of natural gas	1.25 5.47	Lb/hr T/yr	Per rolling 12-month period	BACT-PSD	P0125024 02/06/2019
TX-0772	Jefferson Railport Terminal I Texas LLC Port of Beaumont Petroleum Transload Terminal (PBPTT) Orange, TX	Commercial/ Institutional-size Boilers/ Furnaces	13.2	MMBtu/hour	Good combustion practice to ensure complete combustion	50	PPMVD @ 3%O_2		BACT-PSD	118901, GHGPSDTX108 AND PSDTX1 11/06/2015
TX-0939	Entergy Texas, Inc Orange County Advanced Power Station Orange, TX	Water Bath Heater	16.8	MMBtu/hour	Good combustion practices	50	PPMVD	3%O2	BACT-PSD	166032 PSDTX1598 GHGPSDTX210 03/13/2023
WI-0306	WPL – Riverside Energy Center Rock, WI	Temporary Boiler (B98A)	14.67	MMBtu/hour	Shall be operated for no more than 500 hours and combust only pipeline quality natural gas	0.04	Lb/MMBtu	Heat input	BACT-PSD	19-POY-212 02/28/2020

5.5.3 Inlet Air Heater SO_2 Wyoming BACT Analysis

This section provides an analysis of the inlet air heater SO_2 Wyoming BACT.

5.5.3.1 Identify All Control Technologies

The first step is to evaluate SO_2 controls determined to be BACT by permitting agencies across the United States. This information is available from the EPA RBLC database accessible on the internet. A broad range of other information sources were also reviewed to identify all potentially applicable emission control technologies.

The potential SO_2 emission reduction options found in the RBLC and other sources that could be applied to the CPGS inlet air heaters are the following:

- Use of clean burning low sulfur fuel (pipeline natural gas)
- Good Combustion Practice

5.5.3.2 Eliminate Technically Infeasible Options

Both of these options are technically feasible for use in reducing SO_2 emissions from the inlet air heaters at the CPGS.

5.5.3.3 Rank Remaining Control Technologies by Control Effectiveness

Based on the Step 2 analysis, good combustion practice and use of pipeline natural gas are the only technologies for this application.

5.5.3.4 Evaluate Most Effective Controls and Document Results

No environmental or energy costs are associated with good combustion practice in an inlet air heater.

5.5.3.5 Select BACT

BACT will consist of minimizing SO_2 emissions by using pipeline quality natural gas and utilizing good combustion control practices. Estimated SO_2 emissions are 0.01 lb/hr per inlet air heater and are based on the AP-42 emission factor. This is in line with the previous BACT determination at CPGS.

5.5.4 Inlet Air Heater $PM/PM_{10}/PM_{2.5}$ Wyoming BACT Analysis

This section provides an analysis of the inlet air heater $PM/PM_{10}/PM_{2.5}$ Wyoming BACT.

5.5.4.1 Identify All Control Technologies

Two control technologies for the inlet air heaters have been identified for $PM/PM_{10}/PM_{2.5}$ control:

1. Use of clean burning, low sulfur fuel (pipeline natural gas)
2. Good combustion practice

5.5.4.2 Eliminate Technically Infeasible Options

Both of these options are technically feasible for use in limiting PM/PM_{10}/$PM_{2.5}$ emissions from the inlet air heaters at the CPGS.

5.5.4.3 Rank Remaining Control Technologies by Control Effectiveness

Based on the Step 2 analysis, good combustion practice and use of clean burning fuel are the only technologies for this application.

5.5.4.4 Evaluate Most Effective Controls and Document Results

No environmental or energy costs are associated with good combustion practice in an inlet air heater.

5.5.4.5 Select BACT

Based on the preceding analysis and review of the EPA NSR RBLC database, good combustion practice and use of pipeline natural gas in the inlet air heater are chosen as the technology to control PM/ PM_{10} emissions.

BACT will consist of minimizing PM/PM_{10}/$PM_{2.5}$ emissions by using pipeline quality natural gas and utilizing good combustion control practices. The estimated PM/PM_{10}/$PM_{2.5}$ emissions of 0.12 lb/hr per inlet air heater are based on the AP-42 emission factor. This is in line with the previous BACT determination at CPGS.

5.6 Fire Pump Wyoming BACT

The CPGS project is proposing to add one 400 hp diesel, emergency fire pump engine.

5.6.1 Identify All Control Technologies

The first step is to evaluate controls determined to be BACT by permitting agencies across the United States. This information is available from the EPA RBLC database. A broad range of other information sources were also reviewed to identify all potentially applicable emission control technologies.

Potential control technology options are:

- Engine design, including turbocharging and aftercooling
- Good combustion practice
- SCR
- Oxidation Catalyst
- Low sulfur fuels

5.6.2 Eliminate Technically Infeasible Options

SCR consists of a post-combustion NO_x reduction technology, which uses a catalyst preceded with NH_3 injection. An oxidation catalyst is a post-combustion CO and VOC reduction technology using catalysts at high temperatures. SCR and oxidation catalysts may generally be technically feasible for use on RICE. However, emergency unit operating practices reduce the effectiveness of the control technologies. Since the engine would typically be operated for less than 1 hour during routine maintenance testing, a large portion of the emissions would be uncontrolled until the optimal operating temperature is reached. Also,

potential emissions of NOx, CO and VOC are all less than 1 tpy for this unit. As a result, SCR and oxidation catalyst for this unit would provide less than 1 ton of reduction in NOx, CO, and VOC emissions. No SCR or oxidation catalyst systems have been permitted on similar sources. Therefore, SCR and oxidation catalysts will not be further considered for the fire pump.

Engine design, good combustion practice, and low sulfur fuels are listed in the RBLC for fire pump engines, and both are technically feasible control options.

5.6.3 Rank Remaining Control Technologies by Control Effectiveness

Based on the Step 2 analysis, engine design and good combustion practices are the only technologies for this application.

5.6.4 Evaluate Most Effective Controls

Engine design is being considered for this Project, so the environmental, energy, and economic impacts must be examined. No environmental costs or energy costs are associated with engine design.

The next control technology in the hierarchy is good combustion practice. No environmental or energy costs are associated with good combustion practice for a fire pump.

5.6.5 Select BACT

The final step in the top-down BACT analysis process is to select BACT. EPA's RACT/BACT/LAER Clearinghouse (RBLC), a database of past technology decisions, was again consulted to assist in selecting BACT for this project. BACT will consist of utilizing engine design, good combustion practices, and low sulfur fuel. The engine will be compliant with 40 CFR 60, Subpart IIII emissions standards, which requires Tier 3 emissions levels. Therefore, BACT for the fire pump is considered engine design, good combustion practices, low sulfur fuels, and the use of a Tier 3 certified engine.

Tier 4 certified units are not recommended for emergency RICE due to the potential for reduced engine reliability during periods of emergency demand and the nature of expected operation for these units. Tier 4 units are equipped with shutdown inducement when emissions controls are not operating properly and can lead to the unit not being available during times of emergency demand. Furthermore, the emissions controls for Tier 4 require a brief warmup period before effective emissions control. Due to the anticipated short run times for maintenance and testing of these units while longer emergency operations are expected to be very infrequent, the emissions controls would have a limited impact during most of the units anticipated operating periods. In summary, the design of Tier 4 units is a less effective design for emergency units when compared to Tier 2 and Tier 3 units.

5.7 CPGS BACT Summary

Table 5-15 summarizes the control technologies chosen as a result of the BACT Analysis presented in the previous section.

Table 5-15. BACT Summary

Equipment	NO_X	CO	VOC	SO_2	$PM_{10}/PM_{2.5}$
CPGS Gas Turbines Simple Cycle	DLE Burners w/ SCR (5.0 ppmvd @ 15% O_2)	Good Combustor Design w/ CatOx (6.0 ppmvd @ 15% O_2)	Good Combustor Design w/ CatOx (3.0 ppmvd @ 15% O_2)	Pipeline Natural Gas (0.5 grains of sulfur/100 scf)	Natural Gas & Good Combustor Design (4.0 lb/hr total particulate with 3-hour averaging time)
Wärtsilä Engines	SCR (0.04 g/hp-hr)	Good Combustor Design w/ CatOx (0.11 g/hp-hr)	Good Combustor Design w/ CatOx (8.1 lb/hr)	Pipeline Natural Gas (0.5 grains of sulfur/100 scf)	Natural Gas & Good Combustor Design (3.6 lb/hr total particulate with 3-hour averaging time)
Inlet Air Heaters	LNBs (0.012 lb/MMBtu)	Good combustion design (0.08 lb/MMBtu)	Pipeline natural gas and good combustion practices	Pipeline natural gas and good combustion practices	Pipeline natural gas and good combustion practices
Fire Pump	Engine design and Tier 3 cert. (4.0 g/kW-hr NOx + NMHC)	Engine design and Tier 3 cert. (3.5 g/kW-hr)	Engine design and Tier 3 cert. (4.0 g/kW-hr NOx + NMHC)	Low sulfur fuel and good combustion practices	Tier 3 engine and good combustion practices (0.20 g/ kW-hr)

6. Greenhouse Gas BACT Analysis

Black Hills' CPGS Business Plan has determined that natural gas simple cycle power generation along with the RICE units is the only alternative that meets all of the CPGS requirements for economic and reliable power 24 hours per day and in all weather conditions. As such, other generation technologies such as coal, wind, solar, or other types of turbines/ engines were not evaluated in this BACT analysis. This is consistent with EPA's March 2011 *PSD and Title V Permitting Guidance for Greenhouse Gases,* which states, "EPA has recognized that a Step 1 list of options need not necessarily include inherently lower polluting processes that would fundamentally redefine the nature of the source proposed by the permit applicant…", and "…the permitting authority should keep in mind that BACT, in most cases, should not regulate the applicant's purpose or objective for the proposed facility…."

The emissions sources in this application that will emit GHGs include the simple cycle CTGs, RICE units, inlet heaters, and electrical breakers, as described in section 5.1.1 Equipment Overview. The GHG BACT analysis for the equipment is provided in the following sections. Carbon capture and storage (CCS) is evaluated for the combined equipment in Section 6.6. Implementation of this control technology is the most cost effective when used to capture large sources of CO_2 as opposed to reviewing it at the equipment level.

6.1 GHG BACT Analysis Assumptions

During the completion of GHG BACT analysis, the following assumptions were made:

1. **Appendix C** in the permit application presents estimated CPGS GHG emissions in terms of carbon dioxide equivalent (CO_2e) emissions and only includes emissions of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). The CPGS is not expected to emit hydrofluorocarbons or perfluorocarbons because these man-made gases are primarily used as cooling, cleaning, or propellant agents. Sulfur hexafluoride (SF_6) is also a man-made gas that may be used as an insulating gas for high-voltage equipment and circuit breakers. The CPGS has six existing SF_6 circuit breakers onsite and plans to install 12 new circuit breakers containing SF_6 at the CPGS as part of this project.

2. From the GHG emissions inventory presented in **Appendix C**, the relative quantities of CH_4 and N_2O total less than 2,300 tpy CO_2e, or 0.1 percent of total CO_2e emissions. Due to the extremely small contribution of CH_4 and N_2O emissions to the total, the CPGS GHG BACT analysis includes the five-step process for only CO_2 emissions.

3. Completion of the BACT analysis for criteria pollutants will result in the installation of a SCR system for nitrogen oxide (NO_x) emissions reduction, and an oxidation catalyst for control of CO and VOCs for each turbine and engine.

4. During actual combustion turbine and engine operation, the oxidation catalyst may result in minimal increases in CO_2 from the oxidation of CO and CH_4 in the flue gas. However, the EPA Final Mandatory Reporting of Greenhouse Gases Rule (Mandatory Reporting Rule or MRR) (40 CFR 98) factors for estimating CO_2e emissions from the combustion of natural gas assume complete combustion of the fuel. While the oxidation catalyst has the potential of incrementally increasing CO_2 emissions, these emissions are already accounted for in the MRR factors and included in the CO_2e totals.

5. Similarly, the SCR catalyst may result in an increase in N_2O emissions. Although quantifying the increase is difficult, it is generally estimated to be very small or negligible. From the GHG emissions inventory, the estimated N_2O emissions from all the new combustion turbines and engines total around 4 tpy. Therefore, even if there were an order–of-magnitude increase in N_2O as a result of the SCR, the impact to total CO_2e emissions would be insignificant.

6. Use of the SCR and oxidation catalyst slightly decreases the project thermal efficiency due to backpressure on the turbines (these impacts are already included in the emission inventory) and as noted, may create a marginal but unquantifiable increase to N_2O emissions. The combustion turbine SCR systems will be designed to reduce NO_x from the combustion turbine LNBs from 25 parts per million (ppm) to 3 ppmvd @ 15%O_2. Similarly, the oxidation catalyst systems have the benefits of reducing both CO and VOCs. The oxidation catalyst reduces CO and VOC emissions from 70 ppm to 6 ppmvd @ 15%O_2, and from 8.4 ppm to 3 ppmvd @ 15%O_2, respectively.

7. While elimination of the NO_x and CO/VOC controls could conceivably be considered as an option within the GHG BACT, the environmental benefits of the NO_x, CO, and VOC control are assumed to outweigh the marginal increase to GHG emissions. Thus, even if carried forward through the GHG BACT analysis, they would be eliminated in Step 4 due to other environmental impacts. Therefore, we have not considered omission of these controls within the BACT analysis.

This BACT analysis has been conducted in accordance with Section 165(a) (4) of the *CAA* (at 40 CFR Part 52.21(j)), and in Wyoming Air Quality Standards and Regulations Chapter 6 Section 4(b)(ii). Proposed BACT emissions limits have been selected using the "top-down" approach specified in EPA's *Draft New Source Review Workshop Manual*, (October 1990), using the five-step process.

6.2 Combustion Turbine BACT for GHGs

This section outlines the combustion turbine BACT for GHGs.

6.2.1 Step 1: Identify All Available Control Technologies

EPA's *PSD and Title V Permitting Guidance for Greenhouse Gases* (EPA 2011) identifies three categories of control technologies:

1. Inherently lower-emitting processes/practices/designs
2. Add-on controls
3. Combinations of lower-emitting process/practices/designs and add-on controls

Table 6-1 outlines the BACT alternatives identified to limit the GHG emissions of this Project.

Table 6-1. Available GHG Emission Control Technologies for Proposed Simple Cycle Turbines

Technology		Description
CCS- Discussed in Section 6.6	Carbon Capture	Carbon capture systems produce a concentrated and pressurized stream of CO_2, which is then compressed for transport and/or storage.
	Carbon Transport and Storage	Carbon transport and storage involve compressing and transporting captured CO_2 to a suitable disposal site for deep underground storage in geological formations.

Technology	Description
Clean Fuels	Combustion of a low-carbon fuel, resulting in lower CO_2 emissions per unit of fuel combusted.
Good Combustion Practices and Energy Efficiency Measures	Minimizing GHG emissions by reducing the amount of fuel burned through energy efficiency measures. Energy efficiency measures may include energy-efficient equipment design, minimizing heat loss, and good O&M practices.

The CPGS project as proposed will use a high-efficiency, state-of-the-art, combustion turbine design. Operation will use good combustion practices and result in energy-efficient operation.

6.2.1.1 Clean Fuels

Consistent with the EPA's permitting guidance, clean fuels that reduce GHG emissions should be considered as a control technology.[3] Natural gas consists primarily of CH_4, which has relatively low-carbon content and therefore produces lower emissions of CO_2 when combusted compared to other hydrocarbons. Of the 60 fuel types listed in Table C-1 of 40 CFR 98, natural gas has a lower CO_2 emission rate than all but two—coke-oven gas and biogas, neither of which is an available fuel because there are no coke ovens or large sources of biogas at or near the CPGS.

Additional alternative clean fuel sources to consider include hydrogen, ammonia, and biofuel from feedlot biomass, landfill gas, and anaerobic digesters. However, based on availability, site location and effectiveness, these fuel sources have been deemed as unpractical for the use as an alternative fuel source to natural gas for these simple cycle combustion turbines.

6.2.1.2 Good Combustion Practices and Energy Efficiency Measures

Table 6-2 describes the feasibility and implementation of each applicable energy efficiency measure for the proposed natural gas combustion turbines.

Table 6-2. Technical Feasibility of Energy Efficiency Measures for Reducing GHG Emissions from Combustion Turbines

Energy Efficiency Measure and Description	Feasible?	Proposed Implementation
Efficient Equipment Selection	Yes	New, highly efficient turbines were selected with advanced cooling technology.
Combustion Tuning & Optimization	Yes	This will be part of the turbine startup with equipment vendors. Tuning to optimize burner performance will be incorporated into a routine maintenance procedure.
Instrumentation and Controls	Yes	The combustion turbines will be equipped with instrumentation and controls to regulate and optimize O_2 through combustion.

[3] U.S. Environmental Protection Agency (EPA). 2011. *PSD and Title V Permitting Guidance for Greenhouse Gases, Office of Air and Radiation.* p. 27. March.

6.2.2 Step 2: Eliminate Technically Infeasible Control Technologies

This section describes the elimination of technically infeasible control technologies.

6.2.2.1 Clean Fuels (Natural Gas)

Consistent with the EPA's permitting guidance, clean fuels that reduce GHG emissions should be considered as a control technology, with the understanding that the BACT analysis cannot include a clean fuel option that would fundamentally redefine the source.

6.2.2.2 Good Combustion Practices and Energy Efficiency Measures

Table 6-2 describes the feasibility and implementation of each applicable energy efficiency measure for the proposed combined cycle combustion turbines.

6.2.2.3 Combustion Turbine Generator Comparable Permitting Emissions

A search of the EPA's RACT/BACT/LAER Clearinghouse (RBLC) was performed for simple cycle projects with combustion turbines similar to those proposed for the CPGS project.

The RBLC information presented in **Table 6-3** provides a comparison of GHG permit limits for projects with combustion turbines in the same nominal 40-MW size range as the CPGS project. In each case, clean burning fuel (natural gas) and energy efficiency were selected as the control technology for GHGs from simple cycle turbines.

Table 6-3. CPGS Comparable Unit GHG Emissions

RBLC ID	Company Name and Location	Unit and Size	Throughput	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
AK-0085	ALASKA GASLINE DEVELOPMENT CORPORATION GAS TREATMENT PLANT	Simple Cycle Gas Turbines 44 MW each (6 units)	386 MMBtu/hour	Good combustion practices and clean burning fuel (NG)	117.1	Lb/MMBtu	3-HOUR AVERAGE
MI-0454	LANSING BOARD OF WATER AND LIGHT LBWL-ERICKSON STATION	Natural gas-fired simple cycle CTG	667 MMBtu/hr	Low-carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures	318404	T/YR	12-MO ROLLING TIME PERIOD
*TN-0187	TENNESSEE VALLEY AUTHORITY JOHNSONVILLE COMBUSTION TURBINE	Simply Cycle Gas Turbines 44 MW each (6 units)	465.8 MMBtu/hour	Efficient turbine operation and good combustion practices	120	LB/MMBtu	-
TX-0826	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC. MUSTANG STATION	Simple Cycle Turbine	162.8 MW	Pipeline quality natural gas and good combustion practices	120	Lb/MMBtu	-
TX-0794	BRAZOS ELECTRIC COOPERATIVE HILL COUNTY GENERATING FACILITY	GE 7FA.004 Turbine	171.0 MW	None	1434	Lb/MWh	-

6.2.3 Step 3: Rank Technically Feasible Control Technologies by Control Effectiveness

The use of natural gas as a primary fuel source along with good combustion practices and the implementation of the energy efficiency measures are the only equipment-specific technically feasible control options for minimizing GHG emissions from simple cycle turbines. **Table 6-2** describes the energy efficiency measures that will be implemented as a part of the project for the simple cycle combustion turbines. The combination of these measures is therefore the top-ranked control technology. Implementing energy efficiency operational measures results in less fuel firing and lower GHG emissions and is consistent with a survey of recent GHG BACT limitations listed in the RACT/BACT/LAER Clearinghouse (RBLC) database.

6.2.4 Step 4: Evaluate Technically Feasible Control Technologies

The proposed CPGS electrical generation efficiency is determined to be the most effective GHG control technology. From a review of recently permitted similar units, the CPGS combustion turbine GHG emission rate was found to favorably compare with other combustion turbines and projects.

6.2.5 Step 5: Select BACT

Clean fuel use as well as good combustion practices and energy efficiency measures are the selected BACT for the proposed simple cycle combustion turbines and is determined to consist of the CPGS project as proposed with new state-of-the-art combustion turbines. The CPGS project evaluated combustion turbine exhibits comparable efficiency with recently permitted projects. Therefore, Black Hills proposes that CPGS GHG BACT consist of installation of GE LM6000PF combustion turbines, and the annual CO_2 emissions limit for the new combustion turbines will be based upon the following proposed BACT emission limits. The estimated total annual CO_2e emissions from the LM6000PF combustion turbines are 187,468 tpy each, respectively. This value is proposed to be annual CO_2e permit limits for the three combustion turbines.

EPA's PSD permitting guidance for GHGs suggests use of output-based BACT emission limits and longer-term averaging periods for GHGs. The Black Hills analysis is comprised of conservative scenarios for number of turbine startups and shutdowns, partial load operation, and ambient temperature during operations, and eventual turbine degradation. The facility's EPA GHG Permit has a limit of 1,100 CO_2e/MWh gross energy output, on a 12-month rolling average basis for the operating LM6000 simple cycle units at CPGS.

The federal 40 CFR Part 60 Subpart TTTTa regulations have also set an emission standard for natural gas stationary combustion turbines. The proposed BACT for the CPGS LM6000PF combustion turbines is compliance with the Subpart TTTTa requirements.

The use of clean natural gas fuel and implementation of good combustion practices and operational energy efficiency measures are proposed as BACT for GHG emissions from the newly proposed simple cycle combustion turbines. These measures minimize GHG emissions and are consistent with previous BACT determinations for GHG emissions.

Table 6-4 summarizes applicable GHG BACT limits for the proposed simple cycle combustion turbines.

Table 6-4. Proposed GHG BACT Limits for Proposed Simple Cycle Combustion Turbines

Category	Demonstration
Emission Limitation	Compliance with 40 CFR 60 Subpart TTTTa
Emission Limitation	Each turbine limited to 187,468.6 tons/year CO_2e for LM6000PF
Work Practice	Use 100% natural gas as fuel and good combustion practices
Compliance Demonstration	Operate and maintain turbine in accordance with manufacturer specifications and monitor mass limits with natural gas usage

The proposed GHG BACT determinations will apply at all times, including turndown, and startup, shutdown, and malfunction (SSM). During these periods, gross output would be lower and could approach zero, while significant emissions of CO_2 would still occur. Furthermore, even with proper O&M, the overall performance and heat rate will degrade over 20 years of operation, resulting in a proportionate increase in CO_2 emission rate.

In order to monitor compliance with the proposed GHG BACT limits, Black Hills shall maintain compliance with 40 CFR Part 98, Subparts A and C (GHG MRR and Stationary Combustion) including flow monitoring of fuel usage. The facility will also track the number of hours of operation.

6.3 Wärtsilä Engine BACT for GHGs

This section describes the Wärtsilä engine BACT for GHGs.

6.3.1 Step 1: Identify All Available Control Technologies

Table 6-5 describes the BACT alternatives identified to limit the GHG emissions from the engines.

Table 6-5. Available GHG Emission Control Technologies for Natural Gas Engines

Technology		Description
CCS- Discussed in Section 6.6	Carbon Capture	Carbon capture systems produce a concentrated and pressurized stream of CO_2, which is then compressed for transport and/or storage.
	Carbon Transport and Storage	Carbon transport and storage involve compressing and transporting captured CO_2 to a suitable disposal site for deep underground storage in geological formations.
Clean Fuels		Combustion of a low-carbon fuel, resulting in lower CO_2 emissions per unit of fuel combusted.
Good Combustion Practices and Energy Efficiency Measures		Minimizing GHG emissions by reducing the amount of fuel burned through energy efficiency measures. Energy efficiency measures may include energy-efficient equipment design, minimizing heat loss, waste heat recovery and good O&M practices.

Black Hills is proposing to install 24 new Wärtsilä 18V50SG RICE units (18 MW each) at the CPGS facility. GHG emissions come from the combustion of natural gas to fire the RICE units.

The CPGS project as proposed will use a high-efficiency, state-of-the-art, engine design. Operation will use good combustion practices and result in energy-efficient operation of the engine.

The following analysis will demonstrate that the GHG emission rate is within the range of other recently implemented projects.

6.3.1.1 Clean Fuels

Consistent with the EPA's permitting guidance, clean fuels that reduce GHG emissions should be considered as a control technology.[4] Natural gas consists primarily of CH_4, which has relatively low-carbon content and therefore produces lower emissions of CO_2 when combusted compared to other hydrocarbons. Of the 60 fuel types listed in Table C-1 of 40 CFR 98, natural gas has a lower CO_2 emission rate than all but two—coke-oven gas and biogas, neither of which is an available fuel because there are no coke ovens or large sources of biogas at or near the CPGS.

Additional alternative clean fuel sources to consider include biogas, ammonia, synthetic methanol, and hydrogen blending. However, based on availability, site location and effectiveness, these fuel sources have been deemed as unpractical for the use as an alternative fuel source to natural gas for the engines.

6.3.1.2 Good Combustion Practices and Energy Efficiency Measures

Table 6-6 describes the feasibility and implementation of each applicable energy efficiency measure for the proposed natural gas combustion engines.

Table 6-6. Technical Feasibility of Energy Efficiency Measures for Reducing GHG Emissions from Natural Gas Engines

Energy Efficiency Measure and Description	Feasible?	Proposed Implementation
Efficient Equipment Selection	Yes	New 4-stroke, lean burn, energy-efficient natural gas units will be used. These units are designed to be highly efficient.
Good Maintenance Practices	Yes	Good maintenance practices will be employed, including preventative maintenance.

6.3.2 Step 2: Eliminate Technically Infeasible Control Technologies

This section describes the elimination of technically infeasible control technologies.

6.3.2.1 Clean Fuels (Natural Gas)

Consistent with the EPA's permitting guidance, clean fuels that reduce GHG emissions should be considered as a control technology, with the understanding that the BACT analysis cannot include a clean fuel option that would fundamentally redefine the source.

[4] U.S. Environmental Protection Agency (EPA). 2011. PSD and Title V Permitting Guidance for Greenhouse Gases, Office of Air and Radiation. p. 27. March.

6.3.2.2 Good Combustion Practices and Energy Efficiency Measures

Good combustion practices and energy efficiency measures will be incorporated into the design and operation of the Wärtsilä RICE units.

6.3.2.3 RICE Units Comparable Permitted Emissions

Table 6-7. CPGS Comparable Unit GHG Emissions provides a summary of natural gas combustion engines like those proposed for the CPGS project from the RACT/BACT/LAER Clearinghouse (RBLC), which have been recently permitted and operating.

Table 6-7. CPGS Comparable Unit GHG Emissions

RBLC ID	Company Name and Location	Unit and Size	Throughput	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
FL-0370	CITY OF TALLAHASSEE ARVAH B. HOPKINS GENERATING STATION	18.82 MW SI Internal Combustion Engine Unit 1A	161.4 MMBtu/hour	Use of new natural gas-fired, thermally efficient SI RICE combined with good combustion and maintenance practices to maintain optimum efficiency	1110	LB/MWH, BASED ON HHV	Three 1-hour test runs @ 100%, 70% & 40%
MI-0459	LANSING BOARD OF WATER AND LIGHT LANSING BOARD OF WATER AND LIGHT--DELTA ENERGY PARK	FG ENGINES Natural Gas-Fired RICE (6 units)	29147 BHP	Good combustion practices, use of current energy efficiency measures	90268	T/YR	12-mo rolling time period
MI-0440	MICHIGAN STATE UNIVERSITY	FGENGINES Natural Gas-Fired RICE (4 units)	16500 hp	Use low-carbon fuels and implement energy efficiency measures and preventative maintenance pursuant to manufacturer recommendations	48724	T/YR	12-month rolling time period
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION WESTON PLANT	18 MW RICE (P101-P107) (7 units)	152.3 MMBTU/H	Use of good combustion practices and use of pipeline quality natural gas	1100	LB/MWH ELEC. OUTPUT	Any 12-consecutive-operating-months

6.3.3 Step 3: Rank Technically Feasible Control Technologies by Control Effectiveness

The use of natural gas as a primary fuel source along with good combustion practices and the implementation of the technically feasible operational energy efficiency measures are the only technically feasible control options for minimizing GHG emissions from the Wärtsilä RICE units. The energy efficiency measures which will be implemented as a part of the project are included in **Table 6-2** for the Wärtsilä RICE units. The combination of these measures is therefore the top-ranked control technology. Implementing energy efficiency operational measures results in less fuel firing and lower GHG emissions and is consistent with a survey of recent GHG BACT limitations listed in the RACT/BACT/LAER Clearinghouse (RBLC) database.

6.3.4 Step 4: Evaluate Technically Feasible Control Technologies

The proposed CPGS electrical generation efficiency is determined to be the most effective GHG control technology. From a review of recently permitted similar units, the CPGS Wärtsilä RICE unit GHG emission rate was found to favorably compare with other projects.

6.3.5 Step 5: Select BACT

Clean fuel use as well as good combustion practices and energy efficiency measures are the selected BACT for the proposed natural gas engines and is determined to consist of the CPGS project as proposed with new state-of-the-art engines. The CPGS project evaluated natural gas engines exhibits comparable efficiency with recently permitted projects. Therefore, Black Hills proposes that CPGS GHG BACT consist of installation of Wärtsilä 18V50SG RICE units, and the annual CO_2 emissions limit for the new combustion turbines will be based upon the proposed BACT emission limits that follow. The estimated total annual CO_2e emissions from the Wärtsilä 18V50SG RICE units 69,253 tpy each, respectively. These values are proposed to be annual CO_2e permit limits for the engines.

The use of clean natural gas fuel and implementation of good combustion practices and operational energy efficiency measures are proposed as BACT for GHG emissions from the newly proposed engines. This is consistent with recent BACT determinations for GHG emissions from Wärtsilä RICE engines.

Table 6-8 summarizes applicable GHG BACT limits for the proposed engines.

Table 6-8. Proposed GHG BACT Limits for Proposed Engines

Category	Demonstration
Emission Limitation	Each engine limited to 69,253 tons/year CO_2e
Work Practice	Use 100% natural gas as fuel and good combustion practices
Compliance Demonstration	Operate and maintain in accordance with manufacturer specifications and monitor mass limits with natural gas usage

The proposed GHG BACT determinations will apply at all times, including turndown, and SSM. During these periods, gross output would be lower and could approach zero, while significant emissions of CO_2 would still occur. Furthermore, even with proper O&M, the overall performance and heat rate will degrade over 20 years of operation, resulting in a proportionate increase in CO_2 emission rate.

In order to monitor compliance with the proposed GHG BACT limits, Black Hills shall maintain compliance with 40 CFR Part 98, Subparts A and C (GHG MRR and Stationary Combustion) including flow monitoring of fuel usage. The facility will also track the number of hours of operation.

6.4 Small Combustion Sources BACT for GHGs

In addition to the combustion turbines planned for the CPGS project, there are three new natural gas-fired inlet air heaters that will be installed. Appendix C provides the GHG calculations for these sources.

The total GHG emissions from the proposed inlet air heaters are very minor as compared to the emissions from the combustion turbines and the Wärtsilä RICE units. However, for completeness, these minor GHG emission sources were evaluated in aggregate as follows.

6.4.1 Step 1: Identify All Available Control Technologies

Table 6-9 summarizes the available control technologies for the CPGS minor GHG sources.

Table 6-9. Available GHG Emission Control Technologies

Technology		Description
CCS – Discussed in Section 6.6	Carbon Capture	Carbon capture systems produce a concentrated and pressurized stream of CO_2, which is then compressed for transport and/or storage.
	Carbon Transport and Storage	Carbon transport and storage involve compressing and transporting captured CO_2 to a suitable disposal site for deep underground storage in geological formations.
Clean Fuels		Combustion of a low-carbon fuel, resulting in lower CO_2 emissions per unit of fuel combusted.
Good Combustion Practices and Energy Efficiency Measures		Minimizing GHG emissions by reducing the amount of fuel burned through energy efficiency measures. Energy efficiency measures may include energy-efficient equipment design, minimizing heat loss, waste heat recovery and good O&M practices.

6.4.1.1 Clean Fuels

Consistent with the EPA's permitting guidance, clean fuels that reduce GHG emissions should be considered as a control technology.[5] Natural gas consists primarily of CH_4, which has relatively low-carbon content and therefore produces lower emissions of CO_2 when combusted compared to other hydrocarbons. Of the 60 fuel types listed in Table C-1 of 40 CFR 98, natural gas has a lower CO_2 emission rate than all but two—coke-oven gas and biogas, neither of which is an available fuel because there are no coke ovens or large sources of biogas near the facility.

[5] U.S. Environmental Protection Agency (EPA). 2011. *PSD and Title V Permitting Guidance for Greenhouse Gases.* Office of Air and Radiation. p. 27. March.

6.4.1.2 Good Combustion Practices and Energy Efficiency Measures

Efficient design and good combustion practices are paramount in minimizing CO_2 emissions for combustion sources. By designing and operating combustion sources with a higher efficiency, less fuel is burned, reducing the amount of each CO_2 produced as a product or byproduct of combustion. Improvements in overall combustion unit efficiency ensure that more of the energy (in terms of MMBtu fired) is recovered as useful output in the process instead of being lost as unused heat that is discharged as high temperature exhaust gases. This reduces total fuel consumption and limits GHG emissions.

Energy-efficient design and operation measures that are available for minimizing CO_2 emissions include energy-efficient equipment design, heat loss minimization, waste heat recovery, and good O&M practices.

6.4.2 Step 2: Eliminate Technically Infeasible Control Technologies

This section discusses the elimination of technically infeasible control technologies.

6.4.2.1 Clean Fuels (Natural Gas)

Consistent with the EPA's permitting guidance, clean fuels that reduce GHG emissions should be considered as a control technology, with the understanding that the BACT analysis cannot include a clean fuel option that would fundamentally redefine the source.

6.4.2.2 Good Combustion Practices and Energy Efficiency Measures

Table 6-10 summarizes the feasibility and implementation of each applicable energy efficiency measures for the proposed natural gas heaters.

Table 6-10. Technical Feasibility of Energy Efficiency Measures for Reducing GHG Emissions from Inlet Air Heaters

Energy Efficiency Measure and Description	Feasible?	Proposed Implementation
Efficient Equipment Selection	Yes	New energy-efficient natural gas units will be used. These units are designed to be highly efficient.
Good Maintenance Practices	Yes	Good maintenance practices will be employed, including preventative maintenance.

6.4.2.3 Inlet Air Heater Units Comparable Permitted Emissions

Table 6-11 provides a summary of natural gas heaters like those proposed for the CPGS Project from the RACT/BACT/LAER Clearinghouse (RBLC), which have been recently permitted and operating.

Table 6-11. CPGS Comparable Unit GHG Emissions

RBLC ID	Company Name and Location	Unit and Size	Throughput	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
AL-0307	CONSTELLIUM ALLOYS PLANT	PACKAGE BOILER	17.5 MMBTU/H	None	34189	T/YR	12 month rolling total
OH-0374	GUERNSEY POWER STATION LLC	Fuel Gas Heaters P007 and P008 (2 units)	15 MMBTU/H	Natural gas, low-emitting fuel	7695	T/YR	Per rolling 12 month period
KY-0110	NUCOR NUCOR STEEL BRANDENBURG	EP 03-05 - Steckel Mill Coiling Furnaces #1 & #2	17.5 MMBtu/hour, each	This EP is required to have a GCOP Plan	18142	TON/YR	12-month rolling
AR-0171	NUCOR CORPORATION NUCOR STEEL ARKANSAS	SN-233 Galvanizing Line Boilers	15 MMBtu/hour each	Good combustion practices	121	LB/MMBtu	-
KY-0115	NUCOR STEEL GALLATIN, LLC	Pickle Line #2 Boiler #1 & #2 (EP 21-04 & EP 21-05)	18 MMBtu/hour, each	The permittee must develop a GCOP Plan and implement various design and operational efficiency requirements	12675	TONS/YR	Each
OH-0379	PETMIN USA INCORPORATED	Startup boiler (B001)	15.17 MMBTU/H	Good combustion practices and the use of natural gas	1784	LB/H	-
AL-0329	TENNESSEE VALLEY AUTHORITY COLBERT COMBUSTION TURBINE PLANT	Gas Heaters (3 units)	10 MMBtu/hour	None	117.1	LB/MMBtu	-

RBLC ID	Company Name and Location	Unit and Size	Throughput	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	FGPREHEAT (2 units)	7 MMBTU/H	Energy efficiency	3590	T/YR	12-mo rolling time period; each unit
IN-0382	DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION	Turbine Fuel Heaters (2 units)	10 MMBtu/hour	good combustion practices and use of pipeline quality natural gas	10258	TONS	Per twelve (12) consecutive month period

GCOP = Good Combustion and Operating Practices

6.4.3 Step 3: Rank Technically Feasible Control Technologies by Control Effectiveness

The use of natural gas as a primary fuel source along with good combustion practices and the implementation of the technically feasible operational energy efficiency measures are the only equipment-specific technically feasible control options for minimizing GHG emissions from the proposed small combustion sources. **Table 6-10** outlines the energy efficiency measures that will be implemented as a part of the project for the heaters. The combination of these measures is therefore the top-ranked control technology. Implementing energy efficiency operational measures results in less fuel firing and lower GHG emissions and is consistent with a survey of recent GHG BACT limitations listed in the RACT/BACT/LAER Clearinghouse (RBLC) database.

6.4.4 Step 4: Evaluate Technically Feasible Control Technologies

The use of natural gas as the fuel source with implementation of good combustion practices as the GHG emissions control technologies have no appreciable adverse energy, environmental, or economic impacts and therefore are consistent with BACT.

6.4.5 Step 5: Select BACT

The use of clean natural gas fuel and implementation of good combustion practices and operational energy efficiency measures are proposed as BACT for GHG emissions from the newly proposed heaters. This is consistent with recent BACT determinations for GHG emissions from small heaters.
Table 6-12 summarizes applicable GHG BACT limits for the proposed inlet air heaters.

Table 6-12. Proposed GHG BACT Limits for each Proposed Inlet Air Heater

Category	Demonstration
Emission Limitation	Each heater limited to 4,121 tons/year CO_2e
Work Practice	Use 100% natural gas as fuel and good combustion practices
Compliance Demonstration	Operate and maintain heater in accordance with manufacturer specifications and monitor mass limits with natural gas usage

In order to monitor compliance with the proposed GHG BACT limits, Black Hills shall maintain compliance with 40 CFR Part 98, Subparts A and C (GHG MRR and Stationary Combustion).

6.5 Emergency RICE BACT for GHGs

There is one diesel fire pump engine that will be installed. Appendix C provides the GHG calculations for this source.

The total GHG emissions from the proposed fire pump is very minor as compared to the emissions from the combustion turbines and the Wärtsilä RICE units at 114 tpy. However, for completeness, this minor GHG emission source was evaluated.

6.5.1 Step 1: Identify All Available Control Technologies

Table 6-13 summarizes the available control technologies for the CPGS minor GHG sources.

Table 6-13. Available GHG Emission Control Technologies

Technology		Description
CCS – Discussed in Section 6.6	Carbon Capture	Carbon capture systems produce a concentrated and pressurized stream of CO_2, which is then compressed for transport and/or storage.
	Carbon Transport and Storage	Carbon transport and storage involve compressing and transporting captured CO_2 to a suitable disposal site for deep underground storage in geological formations.
Good Combustion Practices and Energy Efficiency Measures		Minimizing GHG emissions by reducing the amount of fuel burned through energy efficiency measures. Energy efficiency measures may include energy-efficient equipment design, minimizing heat loss, waste heat recovery and good O&M practices.

6.5.2 Step 2: Eliminate Technically Infeasible Control Technologies

Both good combustion practices and efficient use of energy would be considered technically feasible options.

6.5.3 Step 3: Rank Technically Feasible Control Technologies by Control Effectiveness

The remaining technically feasible GHG control options are good combustion practices and efficient use of energy. These technologies can be implemented together.

6.5.4 Step 4: Evaluate Technically Feasible Control Technologies

Both thermal efficiency and efficient use of energy will be implemented for the fire pump.

6.5.5 Step 5: Select BACT

BACT is considered good combustion practices and efficient use of energy for the fire pump engine. The unit will be maintained in a manner to promote good combustion, and, as an emergency unit, energy will be used in an efficient manner by only operating the fire pump as needed for maintenance and readiness testing or for emergency situations.

6.6 SF_6 Equipment

Several SF_6 circuit breakers will be added as a part of the project. SF_6 is a greenhouse gas with a high global warming potential. Modern SF_6 circuit breakers are designed to minimize the potential for leaks using a totally enclosed design. Alternatives to SF_6 for high-voltage systems are being researched and promising options have been identified for low and medium voltage systems. However, SF_6 alternatives for high-voltage systems are less established and require more time for development. SF_6 alternatives are not currently considered commercially available and not technically feasible for this project.

BACT is recommended as a leak rate of less than 0.5% SF_6 per 12-month period for each SF_6 circuit breaker. A review of the RBLC database indicates that the proposed limit is consistent with similar, recently permitted sources.

Table 6-14. CPGS Comparable Unit SF6 Emissions

RBLC ID	Company Name and Location	Unit	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
FL-0354	FLORIDA POWER & LIGHT	Circuit Breakers	Limitation on leaks	0.5	% PER YEAR	Must have certified leak rate less than
FL-0355	FLORIDA POWER & LIGHT (FPL)	Circuit breakers	Limitation on leak of SF6 from circuit breakers	0.5	PERCENT	Leak rate per year
FL-0356	FLORIDA POWER & LIGHT	Circuit breakers	Leak prevention. Must have manufacturer-guaranteed leak rate of no more than 0.5% per year. Must be equipped with leakage detection systems and alarms.	0		
FL-0363	FLORIDA POWER AND LIGHT COMPANY	Circuit breakers (two)	Certified leak rate < 0.5% per year	0.5	% LEAK PER YEAR	
FL-0367	SHADY HILLS ENERGY CENTER, LLC	Two Circuit Breakers	Certified leak rate < 0.5% per year	0.5	% LEAK PER YEAR	
FL-0371	SHADY HILLS ENERGY CENTER, LLC	Two Circuit Breakers	Certified leak rate < 0.5% per year	0.5	% LEAK PER YEAR	
IL-0129	CPV THREE RIVERS, LLC	Circuit Breakers		0.5	% LEAK RATE	Calendar year average
IL-0130	JACKSON GENERATION, LLC	Circuit Breakers		0.5	PERCENT LEAK RATE	Calendar year average
IL-0133	LINCOLN LAND ENERGY CENTER (A/K/A EMBERCLEAR)	Circuit Breakers		0.5	PERCENT LEAK RATE	12-month rolling average

RBLC ID	Company Name and Location	Unit	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
IN-0382	DUKE ENERGY INDIANA, INC.	Electrical Circuit Breakers	Fully enclosed pressurized SF6 circuit breakers outfitted with density alarms for leak detection	0.5	%	Per twelve (12) consecutive month period
IN-0384	INVENERGY THERMAL DEVELOPMENT LLC	Circuit Breakers	Totally enclosed and pressurized circuit breakers with a design leak rate of no more than 0.5% and a density alarm for leak detection	73.6	LB	Twelve (12) consecutive month period
PA-0309	LACKAWANNA ENERGY CENTER, LLC	Circuit breakers with SF6	Low-pressure alarms and low-pressure lockout system	6	LB/12MO	Any 12 consecutive month period
PA-0310	CPV FAIRVIEW, LLC	Circuit breakers	State-of-the-art sealed enclosed-pressure circuit breakers with leak detection	1500	PPM	
WI-0299	WPL- RIVERSIDE ENERGY CENTER	Sulfur Hexafluoride Containing Circuit Breakers and Transformers (F90)		0.5	% LEAK RATE, BY WGHT	Annually

6.7 System-Wide Carbon Capture and Storage

This section evaluates the CCS as a control technology for the system-wide (combined equipment) included in this application.

6.7.1 Step: 1: Identify All Available Control Technology

Table 6-15. Available GHG Emission Control Technologies

Technology		Description
CCS	Carbon Capture	Carbon capture systems produce a concentrated and pressurized stream of CO_2, which is then compressed for transport and/or storage.
	Carbon Transport and Storage	Carbon transport and storage involve compressing and transporting captured CO_2 to a suitable disposal site for deep underground storage in geological formations.

CCS systems involve use of adsorption or absorption processes to remove CO_2 from flue gas, with subsequent desorption to produce a concentrated CO_2 stream. The concentrated CO_2 is then compressed to "supercritical" temperature and pressure, a state in which CO_2 exists neither as a liquid nor a gas but instead has physical properties of both liquids and gases. The supercritical CO_2 would then be transported to an appropriate location for underground injection into a suitable geological storage reservoir, such as a deep saline aquifer or depleted coal seam or used in crude oil production for enhanced oil recovery (EOR).

In the March 2011 Guidance, the EPA classified CCS as an add-on control technology that is "available" for purposes of the Step 1 listing in GHG BACT analyses for facilities emitting CO_2 in large amounts, such as fossil fuel-fired power plants, and for certain industrial facilities with high-purity CO_2 streams. The EPA guidance also states, "While CCS is a promising technology; EPA does not believe that at this time CCS will be a technically feasible BACT option in certain cases. As noted, to establish that an option is technically infeasible, the permitting record should show that an available control option has neither been demonstrated in practice nor is available and applicable to the source type under review. The EPA recognizes the significant logistical hurdles that the installation and operation of a CCS system presents and that sets it apart from other add-on controls that are typically used to reduce emissions of other regulated pollutants and already have an existing reasonably accessible infrastructure in place to address waste disposal and other offsite needs. Logistical hurdles for CCS may include obtaining contracts for offsite land acquisition (including the availability of land), the need for funding (including, for example, government subsidies), timing of available transportation infrastructure, and developing a site for secure long-term storage. Not every source has the resources to overcome the offsite logistical barriers necessary to apply CCS technology to its operations, and smaller sources will likely be more constrained in this regard."

As of 2025, the fundamental physical processes and engineering aspects of CCS are well understood, and portions of a CCS system are technically mature. In recent years, the adoption of CCS technology has made progress, including in Wyoming. Wyoming is one of two states that has made the push for CCS projects, with one of the first commercial-scale CCS complexes planned for Basin Electric's Dry Fork Station coal

power plant near Gillette, Wyoming.[6] Construction was set to begin in 2027, but funding from the Department of Energy was terminated in June of 2025 and future status for this CCS complex is unclear.[7]

Currently, there are very few CCS projects in operation for the electrical power sector. The only one in operation in the United States in Petra Nova. Petra Nova is a CCS project at a coal-fired power plant in Texas. The project was a post-combustion retrofit that is estimated to capture 1.4 million metric tons of CO_2 per year.[8] The captured gas is compressed and transported via pipeline 80 miles where it is used for EOR at an oil field and then sequestered. The project was nearly $1 billion to build, with about $190 million provided by the U.S. Department of Energy. The project was paused in 2020 but began operating again in 2023 after a change in ownership.

There was a gas turbine CCS project in operation from 1991 to 2005 in Bellingham, Massachusetts. This is the only commercial-scale facility to apply CO_2 capture technology to natural gas turbine flue gas. The flue gas was captured from a 320 MW natural gas combined cycle power plant and used a chemical solvent (amine) to capture CO_2. The plant used a 40MW slip stream and captured 85-95% of the CO_2 that would have been emitted.[9] The plant closed in 2005 after the expiration of tax credits made the plant no longer profitable.

For CCS to be implemented for the equipment included in this application, technology would be needed to "capture" the CO_2 from the sources and compress it, the gas would need to be transported, and there would need to be a viable location for storing the gas. The following section reviews each of step for this project.

6.7.1.1 Capture

The system-wide approach for this evaluation would require CO_2 capture technology to be applied to the simple cycle turbines and Wärtsilä RICE units. The inlet heaters and fire pumps are not reviewed as the low emissions rates for the heaters and fire pump do not make the technology a viable candidate for CCS application. CO_2 capture technology has not been demonstrated for simple cycle combustion turbines and RICE units due to a few technical barriers:

- Scale – simple cycle turbines and RICE units are typically smaller in scale compared to combined cycle systems. The simple cycle turbines in this application have a capacity of 40 MW and RICE units, 18 MW. The smaller nature of this equipment is a challenge for CCS technology, which is more effective with a large amount of high-purity CO_2 streams. Natural gas applications, including simple cycle turbines and RICE units have lower CO_2 exhaust concentrations (~3 to 4%) than other CCS applications such as coal power plants which are typically in the 10-15% concentration range.[10] We have not found evidence that CCS pilot tests have been accomplished on a simple cycle gas turbine system or RICE engine anywhere in the world. This would represent a major technical uncertainty associated with CCS implementation at the Facility.

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[6] Global CCS Institute. 2020. Developing CCUS Projects in Colorado & Wyoming. December 1516. https://www.globalccsinstitute.com/news-media/events/developing-ccus-projects-in-colorado-wyoming/. Gasworld. 2020. Wyoming CCS project receives funding. By Molly Burgess. April 27. https://www.gasworld.com/wyoming-ccs-project-receives-funding/2018952.article.

[7] WyoFile. 2025. Trump cancels $49M Wyoming coal carbon capture project. June 16. https://wyofile.com/trump-cancels-49m-wyoming-coal-carbon-capture-project/.

[8] Petra Nova - W.A. Parish Project | Department of Energy

[9] https://www.energy.gov/sites/prod/files/2017/01/f34/Carbon%20Capture%20Opportunities%20for%20Natural%20Gas%20Fired%20Power%20Systems.pdf

[10] https://netl.doe.gov/research/carbon-management/energy-systems/gasification/gasifipedia/capture-approaches

- Equipment specifications –Simple cycle turbines do not have the benefit of the steam cycle to generate additional power and lower the exhaust temperature compared to a combined cycle application. Before entering the absorber, the turbine exhaust must be cooled to 40 to 60 degrees Celsius to improve absorption and minimize solvent loss due to evaporation. Without steam generation from exhaust heat, cooling of the exhaust stream to the required temperature must be accomplished by other means. The same is true for the RICE engines, the exhaust from the engines is at a high temperature and must be cooled to improve absorption and minimize solvent loss. The additional cooling requirement plus energy required to compress the CO_2 results in an estimated overall energy penalty of at least 10 to 20% of gross power output to apply CCS technology to simple cycle turbines and Wärtsilä RICE units. This range is based on engineering design data for theoretical systems but backed by real-world data from the previously mentioned Petra Nova Site. The Petra Nova Facility captures 90% of CO_2 from a 240 MWe slip stream and consumes 35 MW of power for a 14% energy penalty. That facility has the added benefit of being a combined cycle facility so does not need to cool the exhaust from the turbines.[11]
- RICE units have different exhaust compositions than turbines and smaller capacity per unit, requiring handling of multiple exhaust streams (24 different exhaust streams). This means a more technically complex design to capture the gas from this type of equipment than for a larger combined cycle CCS system.

6.7.1.2 Transportation

Pipelines are the most efficient technology for transporting CO_2 for storage. CO_2 transport pipeline infrastructure exists in the state of Wyoming; however, it does not connect to the southeast part of the state where CPGS is located.[12] A new pipeline would be required to be constructed to either connect CPGS to the existing CO_2 pipeline or to lead to a storage location.

6.7.1.3 Storage

For CCS to be technically feasible, a long-term storage location or EOR operation would need to be identified for the project. While EOR locations may be available in Wyoming, there are no locations in proximity to the CPGS site, requiring the construction of a new pipeline to transport CO_2 to a storage location.

6.7.2 Step 2: Eliminate Technically Feasibility Control Technologies

According to the EPA, for a technology to be technically feasible it "(1) has been demonstrated and operated successfully on the same type of source under review, or (2) is available and applicable to the source type under review. If a technology has been operated on the same type of source, it is presumed to be technically feasible."

CCS for simple cycle turbines and Wärtsilä RICE units has not been demonstrated in practice, has not been made commercially available, and is not feasible due to the multiple technical barriers discussed in Step 1.

6.7.3 Step 3: Rank Technically Feasible Control Technologies

CCS is the only technology reviewed at the combined equipment, project-wide level and was eliminated in Step 2. Therefore, there is no technology left to rank.

[11] United States Energy Association. n.d. https://usea.org/sites/default/files/event-/Greeson%2C%20David.pdf.

[12] Enhanced Oil Recovery Institute. n.d. Wyoming Carbon Dioxide Infrastructure mapping tool. https://geo.eoriwyoming.org/Html5Viewer/Index.html?configBase=https://geo.eoriwyoming.org/Geocortex/Essentials/REST/sites/CCUS/viewers/CCUS_in_Wyoming/virtualdirectory/Resources/Config/Default.

6.7.4 Step 4: Evaluate Technically Feasible Control Technologies

As demonstrated in Step 1, CCS is not a technically feasible alternative for the project; however, high level CCS costs will be further evaluated as part of Step 4 to provide a complete evaluation.

6.7.4.1 Economic Impacts

Since CCS has not been implemented in practice for simple cycle combustion turbines and RICE units, the evaluation is relying on readily available technical information for similar and typical CCS implementation.

The Global CCS Institute reviews and publishes reports analyzing CCS costs across industries and technological applications. The institute recently reviewed capture costs (not including transport and storage) for 11 natural gas-fired plants in various stages of deployment: operational (1), in construction (1), under development (4), and cancelled (5). The costs ranged from $80 to $220/ton of CO_2 captured.[13] Using the cost range for the projects reviewed by the Global CCS Institute and applying it to the CPGS project, results in an estimated costs range of $180,000,000 to $500,000,000 for the CO_2 capture alone, not including compression, transportation, and storage costs.

Heidelberg Materials is a company that integrates carbon capture facilities within its manufacturing plants. They presented a detailed case study at the Global Carbon Capture Summit in London in September 2024. Their all-in costs assuming a nearby direct source-to-sink for CO_2 CCS, including the whole value chain of capture, transport and storage estimates a capital expenditure in the range of 150 euros/tonne of carbon ($161/ton). Applying this value to the CPGS project results in an estimated capital expenditure of $360,000,000 which does not even consider the costs based on the requirements to cool the exhaust from the simple cycle combustion turbines and RICE units or combine exhaust from multiple exhaust points, build new pipeline of undetermined length, etc.

Capital costs for capture system and pipeline construction alone would significantly increase the project capital cost. The substantial parasitic load is associated with the need to cool the exhaust from the simple cycle turbines and engines, compressing the CO_2 gas and operating the CCS system further aggravates the economic impacts.

Not only is CCS not technically feasible at this project scale, as the discussion at Step 1 of this BACT analysis demonstrates, CCS is not economically feasible for simple cycle natural gas-fired combustion turbines and RICE units at this time. Because CCS is neither technically feasible nor economically feasible, the significant negative energy and environmental impacts associated with CCS are not discussed in detail in this analysis.

6.7.5 Step 5: Select BACT

Based on the technical feasibility evaluation in Step 1 and the significant costs to implement an unproven technology for this application, CCS is not a reasonable control technology for this project. Because there are no other system-wide GHG control technologies being considered, no BACT is selected in this step. The control technologies used will be at the equipment/emission source-level as identified in Sections 6.2.5, 6.3.5, 6.4.5, and 6.5.5.

[13] Global CCS Institute. 2025. *Thought Leadership: Advancements In CCS Technologies and Costs.* January. https://www.globalccsinstitute.com/wp-content/uploads/2025/01/Advancements-in-CCS-Technologies-and-Costs-Report-2025.pdf.

7. Requested Permit Conditions and Limits

Black Hills is requesting that DEQ consider the following permit limits and general permit conditions.

7.1 Requested CPGS Permit Conditions

- BHE requests that provisions for turbine core replacement be included in the construction permit for the proposed simple cycle turbines to include the following conditions:
  - Replacement core must be the same make and model as the one being replaced.
  - Fixed capitol cost of the replacement core must be less than 50% of the fixed capitol cost to construct a comparable new turbine unit.
  - A notification is submitted at least 30 days before core replacement.
  - A summary report comparing pre-replacement and post-replacement emissions of NOx and CO monitored via CEMS be submitted to WY DAQ.
- Emissions testing for PM, VOC, and NH_3 to be required every 5 years for the CTs and Wärtsiläs.
- Emissions of NOx and CO will be monitored continuously using CEMS.
- Facility-wide HAP emissions are currently estimated to exceed the major source HAP threshold of 25 tpy after the completion of the project. Because the HAP control efficiency applied for the Wärtsilä oxidation catalysts are potentially conservative, CPGS proposes completing a HAP emissions study soon after the first Wärtsilä engines are operational to determine individual HAP emission rates for the engines. This study will be completed while the facility maintains its area source status. Upon completion of the emissions study, the facility's potential HAP emissions will be re-estimated and compared against the major source HAP thresholds.

8. Air Quality Impact Analysis

An air quality impact analysis was completed to assess project impacts to ambient air. This analysis is being submitted as a separate report through Wyoming's IMPACT system and includes all aspects required under 40 CFR 50 and the February 2025 Draft *Wyoming Department of Environmental Quality, Air Quality Division for Submitting PSD Modeling Analysis.*

The separate modeling report, Air Quality Impact Analysis for the project, includes:

- Class II Impacts Analysis
- Class I Area Impact Analysis
- Vegetation, Soils, and Secondary Growth Impacts Analysis
- Secondary Particulate Matter and Ozone Formation Evaluations

9. References

U.S. Environmental Protection Agency (EPA). 1990. *New Source Review Workshop Manual*: Prevention of Significant Deterioration and Nonattainment Area Permitting, Draft. October.

U.S. Environmental Protection Agency (EPA). 1996. *Office of Air Quality Planning and Standards OAQPS Control Cost Manual*, 5th Edition, EPA 453/ B-96-001. February.

U.S. Environmental Protection Agency (EPA). 1997. *Alternative Control Techniques (ACT) Document - Internal Combustion NO_X Part 1 and 2*, (EPA-453/R-93-032). March.

U.S. Environmental Protection Agency (EPA). 2000. *Stationary Reciprocating Internal Combustion Engines - Updated Information on NOX Emissions and Control Techniques,* (EPA-457/R-00-001). July.

U.S. Environmental Protection Agency (EPA). 2020. *Method 5—Determination of Particulate Matter Emissions from Stationary Sources.* December 7. https://www.epa.gov/emc/method-5-particulate-matter-pm.

Appendix A
Wyoming Application Forms

Facility Detail Report
Facility Name: Cheyenne Prairie Generating Station
ID: F024912

Facility : F024912

Nov 20 2025, 10:18:21

- Facility Information

Facility ID: F024912

Facility Name: Cheyenne Prairie Generating Station

Facility Description: The Cheyenne Prairie Generating Station is a natural gas powered electrical generation facility. A nominal 140 megawatt (MW) gross electrical facility consisting of three (3) 40 MW GE LM6000 combustion turbine generators with two (2) of the turbines operating in combined cycle mode for an additional 20 MW in generation. The station also consists of one (1) wet cooling tower for the combined cycle steam turbine, three (3) 16.1 MMBtu/hr natural gas inlet air heaters for inlet air heating for all of the combustion turbine generators, two (2) 4.5 MMBtu/hr fuel gas heaters, and one (1) 327 hp diesel fire pump engine. The facility is proposing to install three (3) 40 MW GE LM6000 PF simple cycle combustion turbines, twenty-four (24) 18 MW Wartsila 18V50SG natural gas RICE, three (3) 16.07 MMBtu/hr natural gas inlet air heaters, and one (1) 400 hp diesel fire pump engine, bringing the total nominal plant capacity to 692 MW.

Company Name: Cheyenne Light Fuel and Power Company

Facility Class: Title V

Facility Type: Power Plant

Mega Facility: No

Type A: No

Operating Status: Operating

FRS/Programmatic Id: WY0000005602100139

Number of Employees:

Department:

- Location

Physical Address	City	County	Lat/Long	PLSS	Effective Date	Move Out Date
Section 1, T13N, R66W	Laramie County	Laramie	41.12253/-104.72143	S1-T13N-R66W	05/08/2012	

Location Detail For : Section 1, T13N, R66W

Latitude: 41.12253

Longitude: -104.72143

Quarter Quarter:

Quarter:

Section: 1

Township: 13N

Range: 66W

County: Laramie

State: Wyoming

District: District 1

Indian Reservation:

Physical Address 1: Section 1, T13N, R66W

Physical Address 2:

City: Laramie County

Zip: 82001

Effective Date: 05/08/2012

Move Out Date:

- Facilities of Interest

Facility Id	Facility Name	Company Id	Company Name	Address 1	City	Operating	Facility Class	Facility Type	County	Lat/Long	Parcel Number	Department

- Facility wide limits

Pollutant	Potential Emissions	Potential Emissions	Allowable Emissions	Allowable Emissions	EPA Classification	Pollutant Classification

	Rate (Lbs/hour)	Rate (Tons/Year)	Rate (Lbs/Hour)	Rate (Tons/Year)	Code	Date

- **NAICS Codes**

221112 Fossil Fuel Electric Power Generation (SIC 4911)

- **Facility Contacts**

Contact Type	Contact Person	Phone Number	Email	Start Date	End Date
TV Emissions Inventory Billing Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	06/01/2023
Compliance Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	06/01/2023
Environmental Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	06/01/2023
Ambient Air Monitoring Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	
NSR Billing Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	
NSR Permit Issuance Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	
Title V Permitting Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	
Title V Billing Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	08/23/2022	
NSR Permit Issuance Contact	Anderson, Cole	(605)399-5228	Cole.Anderson@blackhillscorp.com	11/20/2025	
Environmental Contact	Carl, Fred	(605)721-2219	Fred.Carl@blackhillscorp.com	06/23/2015	05/01/2017
TV Emissions Inventory Billing Contact	Finley, Steven	(605)721-2249	Steven.Finley@BlackHillsCorp.com	08/28/2012	08/23/2022
Environmental Contact	Finley, Steven	(605)721-2249	Steven.Finley@BlackHillsCorp.com	08/28/2012	08/23/2022
Ambient Air Monitoring Contact	Finley, Steven	(605)721-2249	Steven.Finley@BlackHillsCorp.com	08/28/2012	08/23/2022
Emissions Inventory Contact	Finley, Steven	(605)721-2249	Steven.Finley@BlackHillsCorp.com	08/28/2012	08/23/2022
Compliance Contact	Finley, Steven	(605)721-2249	Steven.Finley@BlackHillsCorp.com	08/28/2012	08/23/2022
Title V Permitting Contact	Finley, Steven	(605)721-2249	Steven.Finley@BlackHillsCorp.com	08/28/2012	08/23/2022
NSR Permit Issuance Contact	Finley, Steven	(605)721-2249	Steven.Finley@BlackHillsCorp.com	08/28/2012	08/23/2022
Title V Public Contact	Groh, Nathan	(307)778-2115	nathan.groh@blackhillscorp.c	06/01/2023	

			om		
TV Emissions Inventory Billing Contact	Groh, Nathan	(307)778-2115	nathan.groh@blackhillscorp.com	06/01/2023	
Compliance Contact	Groh, Nathan	(307)778-2115	nathan.groh@blackhillscorp.com	06/01/2023	
Environmental Contact	Groh, Nathan	(307)778-2115	nathan.groh@blackhillscorp.com	06/01/2023	
On Site Operator/Field Contact	Hartman, Jason	(307)757-3040	Jason.Hartman@blackhillscorp.com	08/28/2012	06/21/2023
On Site Operator/Field Contact	Likewise, Jerry	(307)660-4865	Jerry.Likewise@Blackhillsenergy.com	08/01/2024	
NSR Billing Contact	Lux, Mark L	(605)721-2286	Mark.Lux@blackhillscorp.com	09/08/2017	02/11/2020
Responsible Official	Lux, Mark L	(605)721-2286	Mark.Lux@blackhillscorp.com	08/28/2012	02/11/2020
Title V Permitting Contact	Mordhorst, Tim	(605)721-2181	Tim.Mordhorst@blackhillscorp.com	08/28/2012	05/12/2017
NSR Permit Issuance Contact	Mordhorst, Tim	(605)721-2181	Tim.Mordhorst@blackhillscorp.com	08/28/2012	05/12/2017
Ambient Air Monitoring Contact	Mordhorst, Tim	(605)721-2181	Tim.Mordhorst@blackhillscorp.com	08/28/2012	05/12/2017
Environmental Contact	Mordhorst, Tim	(605)721-2181	Tim.Mordhorst@blackhillscorp.com	08/28/2012	05/12/2017
Emissions Inventory Contact	Mordhorst, Tim	(605)721-2181	Tim.Mordhorst@blackhillscorp.com	08/28/2012	05/12/2017
Compliance Contact	Mordhorst, Tim	(605)721-2181	Tim.Mordhorst@blackhillscorp.com	08/28/2012	05/12/2017
Responsible Official	Ostrem, Marc	(307)687-8916	Marc.Ostrem@blackhillscorp.com	02/11/2020	06/21/2023
Responsible Official	Retzlaff, Jeremy	(307)757-3040	jeremy.retzlaff@blackhillscorp.com	06/21/2023	
On Site Operator/Field Contact	Retzlaff, Jeremy	(307)757-3040	jeremy.retzlaff@blackhillscorp.com	06/21/2023	
NSR Billing Contact	Rogers, Tim	(605)721-2286	Tim.Rogers@blackhillscorp.com	08/01/2012	11/01/2023
NSR Permit Issuance Contact	Rogers, Tim	(605)721-2286	Tim.Rogers@blackhillscorp.com	04/01/2015	11/01/2023

Contact Detail For : Anderson, Cole

Title: Mr.

First Name: Cole

Middle Name:			
Last Name:	Anderson		
Suffix:			
Preferred Name:			
Job Title:	Environmental Manager	Company Name:	Cheyenne Light Fuel and Power Company
Address 1:	PO Box 1400		
Address 2:			
City:	Rapid City	Zip Code:	57709
State:	South Dakota		
International Number:			
Primary Phone No.:	(605)399-5228	Primary Ext. No.:	
Secondary Phone No.:	(307)757-6298	Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			
Email:	Cole.Anderson@blackhillscorp.com	Secondary Email:	

Contact Detail For : Anderson, Cole

Title:	Mr.		
First Name:	Cole		
Middle Name:			
Last Name:	Anderson		
Suffix:			
Preferred Name:			
Job Title:	Environmental Manager	Company Name:	Cheyenne Light Fuel and Power Company
Address 1:	7001 Mount Rushmore Road		
Address 2:			
City:	Rapid City	Zip Code:	57702
State:	South Dakota		
International Number:			
Primary Phone No.:	(605)399-5228	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:	(307)757-6298		
Fax No.:			
Email:	Cole.Anderson@blackhillscorp.com	Secondary Email:	

Contact Detail For : Carl, Fred

Title:			
First Name:	Fred		
Middle Name:			
Last Name:	Carl		
Suffix:			
Preferred Name:			
Job Title:		Company Name:	Black Hills Corporation
Address 1:	PO Box 1400		
Address 2:			
City:	Rapid City	Zip Code:	57709-1400
State:	South Dakota		
International Number:			
Primary Phone No.:	(605)721-2219	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:	(605)721-2568		
Email:	Fred.Carl@blackhillscorp.com	Secondary Email:	

Contact Detail For : Finley, Steven

Title:	Mr.		
First Name:	Steven		
Middle Name:			
Last Name:	Finley		
Suffix:			
Preferred Name:	Steve		
Job Title:	Sr Environmental Professional	Company Name:	Black Hills Corporation
Address 1:	PO BOX 1400		
Address 2:	7001 Mount Rushmore Road		
City:	Rapid City	Zip Code:	57709-1400
State:	South Dakota		
International Number:			
Primary Phone No.:	(605)721-2249	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:	(605)787-3619		
Fax No.:			
Email:	Steven.Finley@BlackHillsCorp.com	Secondary Email:	

Contact Detail For : Groh, Nathan

Title:	Mr.		
First Name:	Nathan		
Middle Name:			
Last Name:	Groh		
Suffix:			
Preferred Name:			
Job Title:	Environmental Manager	Company Name:	Cheyenne Light Fuel and Power Company
Address 1:	1301 W 24th St		
Address 2:			
City:	Cheyenne	Zip Code:	82001
State:	Wyoming		
International Number:			
Primary Phone No.:	(307)778-2115	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:	(402)660-3232		
Fax No.:			
Email:	nathan.groh@blackhillscorp.com	Secondary Email:	

Contact Detail For : Hartman, Jason

Title:	Mr.		
First Name:	Jason		
Middle Name:			
Last Name:	Hartman		
Suffix:			
Preferred Name:			
Job Title:	DIR GEN PROJ ENGINEERING	Company Name:	Black Hills Corporation
Address 1:	6711 HR RANCH ROAD		
Address 2:			
City:	Cheyenne	Zip Code:	82007
State:	Wyoming		
International Number:			
Primary Phone No.:	(307)757-3040	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			

Email:	Jason.Hartman@blackhillscorp.com	Secondary Email:	

Contact Detail For : Likewise, Jerry

Title:			
First Name:	Jerry		
Middle Name:			
Last Name:	Likewise		
Suffix:			
Preferred Name:			
Job Title:		Company Name:	Cheyenne Light Fuel and Power Company
Address 1:	6711 HR RANCH ROAD		
Address 2:			
City:	Cheyenne	Zip Code:	82007
State:	Wyoming		
International Number:			
Primary Phone No.:	(307)660-4865	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			
Email:	Jerry.Likewise@Blackhillsenergy.com	Secondary Email:	

Contact Detail For : Lux, Mark L

Title:	Mr.		
First Name:	Mark		
Middle Name:	L		
Last Name:	Lux		
Suffix:			
Preferred Name:			
Job Title:	VP AND GEN MGR POWER DELIVERY	Company Name:	Black Hills Corporation
Address 1:	P.O. Box 1400		
Address 2:			
City:	Rapid City	Zip Code:	57709
State:	South Dakota		
International Number:			
Primary Phone No.:	(605)721-2286	Primary Ext. No.:	

Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			
Email:	Mark.Lux@blackhillscorp.com	Secondary Email:	

Contact Detail For : Mordhorst, Tim

Title:	Mr.		
First Name:	Tim		
Middle Name:			
Last Name:	Mordhorst		
Suffix:	PE		
Preferred Name:			
Job Title:		Company Name:	Black Hills Corporation
Address 1:	P.O. Box 1400		
Address 2:			
City:	Rapid City	Zip Code:	57709-1400
State:	South Dakota		
International Number:			
Primary Phone No.:	(605)721-2181	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			
Email:	Tim.Mordhorst@blackhillscorp.com	Secondary Email:	

Contact Detail For : Ostrem, Marc

Title:			
First Name:	Marc		
Middle Name:			
Last Name:	Ostrem		
Suffix:			
Preferred Name:			
Job Title:		Company Name:	Black Hills Power Incorporated
Address 1:	13151 Highway 51		
Address 2:			
City:	Gillette	Zip Code:	82718-8201
State:	Wyoming		

International Number:			
Primary Phone No.:	(307)687-8916	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			
Email:	Marc.Ostrem@blackhillscorp.com	Secondary Email:	

Contact Detail For : Retzlaff, Jeremy

Title:	Mr.		
First Name:	Jeremy		
Middle Name:			
Last Name:	Retzlaff		
Suffix:			
Preferred Name:			
Job Title:	Director Power Delivery	Company Name:	Cheyenne Light Fuel and Power Company
Address 1:	6711 HR Ranch Road		
Address 2:			
City:	Cheyenne	Zip Code:	82007
State:	Wyoming		
International Number:			
Primary Phone No.:	(307)757-3040	Primary Ext. No.:	
Secondary Phone No.:		Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			
Email:	jeremy.retzlaff@blackhillscorp.com	Secondary Email:	

Contact Detail For : Rogers, Tim

Title:	Mr.		
First Name:	Tim		
Middle Name:			
Last Name:	Rogers		
Suffix:			
Preferred Name:			
Job Title:	Director Environmental Services	Company Name:	Black Hills Corporation
Address 1:	P.O. Box 1400		
Address 2:			

City:	Rapid City	Zip Code:	57709
State:	South Dakota		
International Number:			
Primary Phone No.:	(605)721-2286	Primary Ext. No.:	
Secondary Phone No.:	(605)787-0015	Secondary Ext. No.:	
Mobile Phone No.:			
Fax No.:			
Email:	Tim.Rogers@blackhillscorp.com	Secondary Email:	

- **Rules & Regs**

Subject to Part 60 NSPS:	X	Subject to 112(r) Accidental Release Prevention:	
Subject to NSPS (Non-Major):			
Subject to Part 61 NESHAP:		Subject to non-attainment NSR:	
Subject Part 63 NESHAP:	X	Subject to PSD:	X
Subject to 40 CFR Part 63 Area Sources:			
Subject to Title IV Acid Rain:	X		

Part 60 NSPS Subparts

Dc - Small Industrial Steam Generating Units
IIII - Stationary Compression Ignition Internal Combustion Engines
JJJJ - Stationary Spark Ignition Internal Combustion Engine
KKKK - Stationary Combustion Turbines
TTTT - Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units

Part 63 NESHAP Subparts

ZZZZ - Reciprocating Internal Combustion Engines

- **Version**

Version ID	Version Start Date	Version End Date	Preserved
CURRENT	10/28/2025		X
119292	09/15/2025	10/28/2025	X
118352	07/29/2025	09/15/2025	X
113891	01/15/2025	07/29/2025	X
113405	12/18/2024	01/15/2025	X
112355	11/14/2024	12/18/2024	X
111821	10/28/2024	11/14/2024	X
111722	10/24/2024	10/28/2024	X
111077	10/14/2024	10/24/2024	X
110857	10/09/2024	10/14/2024	X
109405	08/22/2024	10/09/2024	X
109374	08/20/2024	08/22/2024	X
109043	07/29/2024	08/20/2024	X
102615	04/23/2024	07/29/2024	X

99486	01/30/2024	04/23/2024	X
99318	01/22/2024	01/30/2024	X
92920	07/28/2023	01/22/2024	X
92728	07/13/2023	07/28/2023	X
90469	03/15/2023	07/13/2023	X
90430	03/10/2023	03/15/2023	X
89091	01/24/2023	03/10/2023	X
86505	12/07/2022	01/24/2023	X
76690	01/21/2022	12/07/2022	X
76375	01/18/2022	01/21/2022	X
66407	02/04/2021	01/18/2022	X
65622	12/30/2020	02/04/2021	X
64827	10/29/2020	12/30/2020	X
64798	10/28/2020	10/29/2020	X
64155	09/11/2020	10/28/2020	X
63314	07/29/2020	09/11/2020	X
63171	07/21/2020	07/29/2020	X
62319	06/25/2020	07/21/2020	X
61088	04/28/2020	06/25/2020	X
60826	04/22/2020	04/28/2020	X
59716	03/05/2020	04/22/2020	X
59673	03/04/2020	03/05/2020	X
58493	01/22/2020	03/04/2020	X
57156	10/30/2019	01/22/2020	X
56985	10/18/2019	10/30/2019	X
55924	08/19/2019	10/18/2019	X
54860	06/18/2019	08/19/2019	X
54050	04/29/2019	06/18/2019	X
53879	04/17/2019	04/29/2019	X
53545	03/28/2019	04/17/2019	X
53008	02/25/2019	03/28/2019	X
52540	01/21/2019	02/25/2019	X
51995	12/20/2018	01/21/2019	X
51641	12/01/2018	12/20/2018	X
47903	07/26/2018	12/01/2018	X
47312	06/25/2018	07/26/2018	X
45453	04/27/2018	06/25/2018	X
45082	04/17/2018	04/27/2018	X
42699	01/19/2018	04/17/2018	X
41281	10/11/2017	01/19/2018	X
41221	10/04/2017	10/11/2017	X
40987	09/12/2017	10/04/2017	X
39721	06/12/2017	09/12/2017	X
39216	05/11/2017	06/12/2017	X
39010	04/18/2017	05/11/2017	X
38938	04/11/2017	04/18/2017	X
37914	01/26/2017	04/11/2017	X

37352	11/29/2016	01/26/2017	X
36880	10/22/2016	11/29/2016	X
34859	05/26/2016	10/22/2016	X
33941	02/26/2016	05/26/2016	X
32706	11/06/2015	02/26/2016	X
32473	10/15/2015	11/06/2015	X
32020	09/04/2015	10/15/2015	X
32019	09/04/2015	09/04/2015	X
32018	09/04/2015	09/04/2015	X
31969	09/01/2015	09/04/2015	X
31968	09/01/2015	09/01/2015	X
31967	09/01/2015	09/01/2015	X
31966	09/01/2015	09/01/2015	X
31965	09/01/2015	09/01/2015	X
31964	09/01/2015	09/01/2015	X
31963	09/01/2015	09/01/2015	X
31962	09/01/2015	09/01/2015	X
31950	08/31/2015	09/01/2015	X
31948	08/31/2015	08/31/2015	X
31897	08/26/2015	08/31/2015	X
31698	08/11/2015	08/26/2015	X
27737	09/04/2014	08/11/2015	X
24912	05/15/2013	09/04/2014	X

Emission Unit : BOL007

Nov 20 2025, 10:18:21

- Emission Unit Information

AQD Emissions Unit ID: BOL007

Emission Unit Type: Boiler

Heat Input Rating (MMBtu/hr): 24.49

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Model Name and Number: Cleaver Brooks CBEX Elite 600

Initial Operation Commencement Date: 03/24/2015

AQD Description: Auxiliary Boiler (EP13)

Company Equipment ID: EP13

Company Equipment Description: Auxiliary Boiler (EP13)
The heat input value of 24.49 mmBtu/ hr is based on the nameplate rating.

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Serial Number Tracking

Manufacturer Name	Serial Number	Effective Date
Cleaver Brooks CBEX Elite 600	T4398-1-1	03/24/2015

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide				4.100000	[LTA]		
CO2e - Carbon Dioxide Equivalent				12855.000000			
NOx - Nitrogen Oxides				1.900000	[LTA]		
SO2 - Sulfur Dioxide		0.100000			[LTP]		
VOC - Volatile Organic Compounds		0.200000			[LTP]		

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID:	PRC028
Process Name:	
Company Process Description:	
Source Classification Code (SCC):	1-02-006-02

Control equipment(s) directly associated with this process

LNB007

Emission Unit : CTW010

- Emission Unit Information

AQD Emissions Unit ID: CTW010

Emission Unit Type: Cooling Tower

Drift Rate (%): 0.0

Total Dissolved Solids (ppm): 23700.0000

Water Circulation Rate (gallons/min):

Initial Operation Commencement Date: 06/16/2014

AQD Description: Cooling Tower 1 (Contains 3 Cells) (EP17A, EP17B, EP17C)

Company Equipment ID: EP17

Company Equipment Description: Cooling Tower 1 (Contains 3 Cells) (EP17A, EP17B, EP17C)

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
PM10 Primary (includes filterables + condensibles)	0.400000	1.800000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.400000	1.800000			[STP] [LTP]		

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC023

Process Name:

Company Process Description: Cooling Tower 1

Source Classification Code (SCC): 3-85-001-10

Release points(s) directly associated with this process

VER025

VER024

VER023

Emission Unit : CTW017

- Emission Unit Information

AQD Emissions Unit ID: CTW017

Emission Unit Type: Cooling Tower

Drift Rate (%): 0.0

Total Dissolved Solids (ppm): 23700.0000

Water Circulation Rate (gallons/min):

Initial Operation Commencement Date:

AQD Description:

Company Equipment ID: EP17

Company Equipment Description: Cooling Tower 1 (Contains 3 Cells) (EP17A, EP17B, EP17C)

Operating Status: Not Yet Installed

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC032

Process Name: Cooling Tower 2

Company Process Description: Cooling Tower 2

Source Classification Code (SCC): 3-85-001-10

Release points(s) directly associated with this process

VER030

VER032

VER031

Emission Unit : EGU001

- Emission Unit Information

AQD Emissions Unit ID: EGU001

Emission Unit Type: Electric Generating Unit

Unit Type: Turbine

Heat Input Rating (MMBtu/hr): 136.49

Primary Fuel Type: Pipeline Grade Natural Gas

Secondary Fuel Type: N/A

Manufacturer Name: General Electric

Model Name and Number: LM 6000 PF SPRINT

Initial Operation Commencement Date: 08/29/2014

AQD Description: Combined Cycle Combustion Turbine CT01A (EP01) 40 MW + 10 MW from combined cycle

Company Equipment ID: EP01

Company Equipment Description: Combined Cycle Combustion Turbine CT01A (EP01)

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			3.700000	32.000000	lb/hr = 1-hr average		
CO2e - Carbon Dioxide Equivalent				187318.000000			
Ammonia			5.700000	24.900000	10 ppm at 15% O2		
NOx - Nitrogen Oxides			4.600000	25.500000	lb/hr = 1-hr average		
PM Primary (includes filterables > 10 microns + condensibles)			4.000000	17.500000			
PM10 Primary (includes filterables + condensibles)			4.000000	17.500000			

PM2.5 Primary (includes filterables + condensibles)			4.000000	17.500000			
SO2 - Sulfur Dioxide	0.500000	2.100000			[STP] [LTP]		
VOC - Volatile Organic Compounds			3.000000	14.700000			

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC001

Process Name:

Company Process Description: Combined Cycle Comb Turbine CT01A

Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

CNC001

Emission Unit : EGU002

- Emission Unit Information

AQD Emissions Unit ID: EGU002

Emission Unit Type: Electric Generating Unit

Unit Type: Turbine

Heat Input Rating (MMBtu/hr): 136.49

Primary Fuel Type: Pipeline Grade Natural Gas

Secondary Fuel Type: N/A

Manufacturer Name: General Electric

Model Name and Number: LM 6000 PF SPRINT

Initial Operation Commencement Date: 09/04/2014

AQD Description: Combined Cycle Combustion Turbine CT01B (EP02) 40 MW + 10 MW from combined cycle

Company Equipment ID: EP02

Company Equipment Description: Combined Cycle Combustion Turbine CT01B (EP02)

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			3.700000	32.000000	lb/hr = 1-hr		
CO2e - Carbon Dioxide Equivalent				187318.000000			
Ammonia			5.700000	24.900000	10 ppm at 15% O2		
NOx - Nitrogen Oxides			4.600000	25.500000	lb/hr = 1-hr average		
PM Primary (includes filterables > 10 microns + condensibles)			4.000000	17.500000			
PM10 Primary (includes filterables + condensibles)			4.000000	17.500000			

PM2.5 Primary (includes filterables + condensibles)			4.000000	17.500000			
SO2 - Sulfur Dioxide	0.500000	2.100000			[STP] [LTP]		
VOC - Volatile Organic Compounds			3.000000	14.700000			

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC002

Process Name:

Company Process Description: Combined Cycle Combustion Turbine CT01B

Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

CNC002

Emission Unit : EGU003

- Emission Unit Information

AQD Emissions Unit ID: EGU003

Emission Unit Type: Electric Generating Unit

Unit Type: Turbine

Heat Input Rating (MMBtu/hr): 136.49

Primary Fuel Type: Pipeline Grade Natural Gas

Secondary Fuel Type: N/A

Manufacturer Name: General Electric

Model Name and Number: LM 6000 PF SPRINT

Initial Operation Commencement Date: 08/15/2014

AQD Description: Simple Cycle Combustion Turbine CT02A (EP03) 40 MW

Company Equipment ID: EP03

Company Equipment Description: Simple Cycle Combustion Turbine CT02A (EP03)

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			5.600000	32.900000	lb/hr = 1-hr		
CO2e - Carbon Dioxide Equivalent				187318.000000			
Ammonia			5.700000	24.900000	10 ppm at 15% O2		
NOx - Nitrogen Oxides			7.700000	36.000000	lb/hr = 1-hr		
PM Primary (includes filterables > 10 microns + condensibles)			4.000000	17.500000			
PM10 Primary (includes filterables + condensibles)			4.000000	17.500000			

PM2.5 Primary (includes filterables + condensibles)			4.000000	17.500000			
SO2 - Sulfur Dioxide	0.500000	2.000000			[STP] [LTP]		
VOC - Volatile Organic Compounds			3.000000	14.000000			

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC003

Process Name:

Company Process Description: Simple Cycle Combustion Turbine CT02A

Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

CNC003

Emission Unit : EGU006

- **Emission Unit Information**

AQD Emissions Unit ID: EGU006
Emission Unit Type: Electric Generating Unit
Unit Type: Turbine
Heat Input Rating (MMBtu/hr): 429.0
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: GE
Model Name and Number: LM6000PF+
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: CT03A
Company Equipment Description: Combined Cycle LM6000PF+ SPRINT Combustion Turbine
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC033
Process Name: Turbine CT03A
Company Process Description: Tubine CT03A Combined Cycle
Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

CNC004

Emission Unit : EGU007

- **Emission Unit Information**

AQD Emissions Unit ID: EGU007
Emission Unit Type: Electric Generating Unit
Unit Type: Turbine
Heat Input Rating (MMBtu/hr): 429.0
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: GE
Model Name and Number: LM6000PF+
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: CT03B
Company Equipment Description: Combined Cycle LM6000PF+ SPRINT Combustion Turbine
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC034
Process Name: Turbine CT03B
Company Process Description: Turbine CT03B Combined Cycle
Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

CNC005

Emission Unit : EGU008

- Emission Unit Information

AQD Emissions Unit ID: EGU008
Emission Unit Type: Electric Generating Unit
Unit Type: Turbine
Heat Input Rating (MMBtu/hr): 366.0
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: General Electric
Model Name and Number: LM6000 PF
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 2CTG-TRB-2
Company Equipment Description: Simple Cycle Combustion Turbine 2CTG-TRB-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC038
Process Name:
Company Process Description: Simple Cycle Combustion Turbine 2CTG-TRB-2
Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

OXI006

Emission Unit : EGU009

- Emission Unit Information

AQD Emissions Unit ID: EGU009
Emission Unit Type: Electric Generating Unit
Unit Type: Turbine
Heat Input Rating (MMBtu/hr): 366.0
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: General Electric
Model Name and Number: LM6000 PF
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 3CTG-TRB-1
Company Equipment Description: Simple Cycle Combustion Turbine 3CTG-TRB-1
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC039
Process Name:
Company Process Description: Simple Cycle Combustion Turbine 3CTG-TRB-1
Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

OXI007

Emission Unit : EGU010

- **Emission Unit Information**

AQD Emissions Unit ID: EGU010
Emission Unit Type: Electric Generating Unit
Unit Type: Turbine
Heat Input Rating (MMBtu/hr): 366.0
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: General Electric
Model Name and Number: LM6000 PF
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 3CTG-TRB-2
Company Equipment Description: Simple Cycle Combustion Turbine 3CTG-TRB-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC042
Process Name:
Company Process Description: Simple Cycle Combustion Turbine 3CTG-TRB-2
Source Classification Code (SCC): 2-01-002-01

Control equipment(s) directly associated with this process

OXI008

Emission Unit : EGU011

- **Emission Unit Information**

AQD Emissions Unit ID: EGU011
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 4REB-ENG-1
Company Equipment Description: Natural Gas Wartsila Engine 4REB-ENG-1
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC043
Process Name:
Company Process Description: Natural Gas Wartsila Engine 4REB-ENG-1
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI009

Emission Unit : EGU012

- **Emission Unit Information**

AQD Emissions Unit ID: EGU012
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 4REB-ENG-2
Company Equipment Description: Natural Gas Wartsila Engine 4REB-ENG-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC044
Process Name:
Company Process Description: Natural Gas Wartsila Engine 4REB-ENG-2
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI010

Emission Unit : EGU013

- Emission Unit Information

AQD Emissions Unit ID: EGU013
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 4REB-ENG-3
Company Equipment Description: Natural Gas Wartsila Engine 4REB-ENG-3
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC045
Process Name:
Company Process Description: Natural Gas Wartsila Engine 4REB-ENG-3
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI011

Emission Unit : EGU014

- **Emission Unit Information**

AQD Emissions Unit ID: EGU014
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 4REB-ENG-4
Company Equipment Description: Natural Gas Wartsila Engine 4REB-ENG-4
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC046
Process Name:
Company Process Description: Natural Gas Wartsila Engine 4REB-ENG-4
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI012

Emission Unit : EGU015

- Emission Unit Information

AQD Emissions Unit ID: EGU015
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 4REB-ENG-5
Company Equipment Description: Natural Gas Wartsila Engine 4REB-ENG-5
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC047
Process Name:
Company Process Description: Natural Gas Wartsila Engine 4REB-ENG-5
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI013

Emission Unit : EGU016

- Emission Unit Information

AQD Emissions Unit ID: EGU016
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 4REB-ENG-6
Company Equipment Description: Natural Gas Wartsila Engine 4REB-ENG-6
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC048
Process Name:
Company Process Description: Natural Gas Wartsila Engine 4REB-ENG-6
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI014

Emission Unit : EGU017

- Emission Unit Information

AQD Emissions Unit ID: EGU017
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 5REB-ENG-1
Company Equipment Description: Natural Gas Wartsila Engine 5REB-ENG-1
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC049
Process Name:
Company Process Description: Natural Gas Wartsila Engine 5REB-ENG-1
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI015

Emission Unit : EGU018

- Emission Unit Information

AQD Emissions Unit ID: EGU018
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 5REB-ENG-2
Company Equipment Description: Natural Gas Wartsila Engine 5REB-ENG-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC050
Process Name:
Company Process Description: Natural Gas Wartsila Engine 5REB-ENG-2
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI016

Emission Unit : EGU019

- Emission Unit Information

AQD Emissions Unit ID: EGU019
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 5REB-ENG-3
Company Equipment Description: Natural Gas Wartsila Engine 5REB-ENG-3
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC051
Process Name:
Company Process Description: Natural Gas Wartsila Engine 5REB-ENG-3
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI017

Emission Unit : EGU020

- Emission Unit Information

AQD Emissions Unit ID: EGU020
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 5REB-ENG-4
Company Equipment Description: Natural Gas Wartsila Engine 5REB-ENG-4
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC052
Process Name:
Company Process Description: Natural Gas Wartsila Engine 5REB-ENG-4
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI018

Emission Unit : EGU021

- Emission Unit Information

AQD Emissions Unit ID: EGU021
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 5REB-ENG-5
Company Equipment Description: Natural Gas Wartsila Engine 5REB-ENG-5
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC053
Process Name:
Company Process Description: Natural Gas Wartsila Engine 5REB-ENG-5
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI019

Emission Unit : EGU022

- **Emission Unit Information**

AQD Emissions Unit ID: EGU022
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 5REB-ENG-6
Company Equipment Description: Natural Gas Wartsila Engine 5REB-ENG-6
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC054
Process Name:
Company Process Description: Natural Gas Wartsila Engine 5REB-ENG-6
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI020

Emission Unit : EGU023

- Emission Unit Information

AQD Emissions Unit ID: EGU023
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 6REB-ENG-1
Company Equipment Description: Natural Gas Wartsila Engine 6REB-ENG-1
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC055
Process Name:
Company Process Description: Natural Gas Wartsila Engine 6REB-ENG-1
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI021

Emission Unit : EGU024

- **Emission Unit Information**

AQD Emissions Unit ID: EGU024
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 6REB-ENG-2
Company Equipment Description: Natural Gas Wartsila Engine 6REB-ENG-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC056
Process Name:
Company Process Description: Natural Gas Wartsila Engine 6REB-ENG-2
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI022

Emission Unit : EGU025

- Emission Unit Information

AQD Emissions Unit ID: EGU025
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 6REB-ENG-3
Company Equipment Description: Natural Gas Wartsila Engine 6REB-ENG-3
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC057
Process Name:
Company Process Description: Natural Gas Wartsila Engine 6REB-ENG-3
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI023

Emission Unit : EGU026

- Emission Unit Information

AQD Emissions Unit ID: EGU026
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 6REB-ENG-4
Company Equipment Description: Natural Gas Wartsila Engine 6REB-ENG-4
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC058
Process Name:
Company Process Description: Natural Gas Wartsila Engine 6REB-ENG-4
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI024

Emission Unit : EGU027

- Emission Unit Information

AQD Emissions Unit ID: EGU027
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 6REB-ENG-5
Company Equipment Description: Natural Gas Wartsila Engine 6REB-ENG-5
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC059
Process Name:
Company Process Description: Natural Gas Wartsila Engine 6REB-ENG-5
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI025

Emission Unit : EGU028

- Emission Unit Information

AQD Emissions Unit ID: EGU028
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 6REB-ENG-6
Company Equipment Description: Natural Gas Wartsila Engine 6REB-ENG-6
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC060
Process Name:
Company Process Description: Natural Gas Wartsila Engine 6REB-ENG-6
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI026

Emission Unit : EGU029

- Emission Unit Information

AQD Emissions Unit ID: EGU029
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 7REB-ENG-1
Company Equipment Description: Natural Gas Wartsila Engine 7REB-ENG-1
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC061
Process Name:
Company Process Description: Natural Gas Wartsila Engine 7REB-ENG-1
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI027

Emission Unit : EGU030

- Emission Unit Information

AQD Emissions Unit ID: EGU030
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 7REB-ENG-2
Company Equipment Description: Natural Gas Wartsila Engine 7REB-ENG-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC062
Process Name:
Company Process Description: Natural Gas Wartsila Engine 7REB-ENG-2
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI028

Emission Unit : EGU031

- Emission Unit Information

AQD Emissions Unit ID: EGU031
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 7REB-ENG-3
Company Equipment Description: Natural Gas Wartsila Engine 7REB-ENG-3
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC063
Process Name:
Company Process Description: Natural Gas Wartsila Engine 7REB-ENG-3
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI029

Emission Unit : EGU032

- **Emission Unit Information**

AQD Emissions Unit ID: EGU032
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 7REB-ENG-4
Company Equipment Description: Natural Gas Wartsila Engine 7REB-ENG-4
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC064
Process Name:
Company Process Description: Natural Gas Wartsila Engine 7REB-ENG-4
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI030

Emission Unit : EGU033

- Emission Unit Information

AQD Emissions Unit ID: EGU033
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 7REB-ENG-5
Company Equipment Description: Natural Gas Wartsila Engine 7REB-ENG-5
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC065
Process Name:
Company Process Description: Natural Gas Wartsila Engine 7REB-ENG-5
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI031

Emission Unit : EGU034

- **Emission Unit Information**

AQD Emissions Unit ID: EGU034
Emission Unit Type: Electric Generating Unit
Unit Type: Other
Heat Input Rating (MMBtu/hr): 143.2
Primary Fuel Type: Pipeline Grade Natural Gas
Secondary Fuel Type: N/A
Manufacturer Name: Wartsila
Model Name and Number: 18V50SG
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 7REB-ENG-6
Company Equipment Description: Natural Gas Wartsila Engine 7REB-ENG-6
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC066
Process Name:
Company Process Description: Natural Gas Wartsila Engine 7REB-ENG-6
Source Classification Code (SCC): 2-01-002-02

Control equipment(s) directly associated with this process

OXI032

Emission Unit : ENG002

- Emission Unit Information

AQD Emissions Unit ID:	ENG002		
Emission Unit Type:	Engine		
Name Plate Rating:	327.00	Units:	hp
Site Rating:		Units:	
Primary Fuel Type:	Diesel	Secondary Fuel Type:	N/A
Model Name and Number:	Clarke JW6H (RPM 1760)	Engine:	Compression Ignition
Type Of Use:			
Initial Operation Commencement Date:	06/16/2014		
AQD Description:	Diesel Fire Pump (EP16), EPA Tier 3		
Company Equipment ID:	EP16		
Company Equipment Description:	Diesel Fire Pump (EP16), EPA Tier 3		
Operating Status:	Operating		
Initial Construction Commencement Date:	04/08/2013		
Most Recent Construction/Modification Commencement Date:			
Most Recent Operation Commencement Date:			

- Serial Number Tracking

Serial Number	Manufacturer Name	Construction/Installation Commencement Date	Operation Commencement/Start-up Date	Order Date	Manufacture Date	Shutdown Date	Removal Date
RG6090L117380	John Deer						

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide	0.500000	0.100000			[STP] [LTP]		
NOx - Nitrogen Oxides	1.900000	0.200000			[STP] [LTP]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.010000			[STP] [LTP]		
PM2.5 Primary	0.100000	0.010000			[STP] [LTP]		

(includes filterables + condensibles)							
SO2 - Sulfur Dioxide	0.004000	0.000500			[STP] [LTP]		
VOC - Volatile Organic Compounds	0.100000	0.010000			[STP] [LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC022
Process Name:
Company Process Description: Diesel Fire Pump
Source Classification Code (SCC): 2-02-001-02

Release points(s) directly associated with this process

VER022

Emission Unit : ENG003

- **Emission Unit Information**

AQD Emissions Unit ID: ENG003
Emission Unit Type: Engine
Name Plate Rating: 1468.00 Units: hp
Site Rating: 1468.00 Units: hp
Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A
Model Name and Number: Caterpillar G3512 Engine: 4 Stroke Rich Burn
Type Of Use: Emergency
Initial Operation Commencement Date: 12/17/2019

AQD Description: Caterpillar G3512 Emergency Generator
Company Equipment ID: EMERG01
Company Equipment Description: Emergency Generator used to provide electricity to start a turbine when utility power is down.
Operating Status: Operating

Initial Construction Commencement Date: 09/16/2019
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Serial Number Tracking**

Serial Number	Manufacturer Name	Construction/Installation Commencement Date	Operation Commencement/Start-up Date	Order Date	Manufacture Date	Shutdown Date	Removal Date
E2X00163	Caterpillar	09/16/2019	12/17/2019		02/01/2019		

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC031
Process Name: Black Start Engine
Company Process Description: Emergency generator engine
Source Classification Code (SCC): 2-02-002-53

Release points(s) directly associated with this process

VER033

Emission Unit : ENG004

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- **Emission Unit Information**

AQD Emissions Unit ID: ENG004
Emission Unit Type: Engine
Name Plate Rating: 400.00
Units: hp
Site Rating:
Units:
Primary Fuel Type: Diesel
Secondary Fuel Type: N/A
Model Name and Number: TBD
Engine: Compression Ignition
Type Of Use: Emergency
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: FP-ENG-2
Company Equipment Description: 400 HP Diesel Emergency Fire Pump
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- **Serial Number Tracking**

Serial Number	Manufacturer Name	Construction/Installation Commencement Date	Operation Commencement/Start-up Date	Order Date	Manufacture Date	Shutdown Date	Removal Date
TBD							

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC067
Process Name:
Company Process Description: 400 HP Diesel Emergency Fire Pump
Source Classification Code (SCC): 2-02-001-07

Release points(s) directly associated with this process

VER064

Emission Unit : FUG001

- Emission Unit Information

AQD Emissions Unit ID: FUG001

Emission Unit Type: Fugitive

Fugitive Emission Type - Fugitive Leaks at Oil and Gas Sites:

Initial Operation Commencement Date:

AQD Description:

Company Equipment ID: NG FUG

Company Equipment Description: Natural Gas Fugitives

Operating Status: Operating

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC035

Process Name: NG Fugitives

Company Process Description: NG Fugitives

Source Classification Code (SCC): 3-90-006-99

Emission Unit : FUG002

- **Emission Unit Information**

AQD Emissions Unit ID: FUG002

Emission Unit Type: Fugitive

Fugitive Emission Type - Fugitive Leaks at Oil and Gas Sites:

Initial Operation Commencement Date:

AQD Description:

Company Equipment ID: SF6 leaks

Company Equipment Description: SF6 circuit breaker fugitives

Operating Status: Operating

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- **Permitted Emissions**

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC036

Process Name: SF6 leaks

Company Process Description:

Source Classification Code (SCC): 2-01-002-01

Emission Unit : HET003

- Emission Unit Information

AQD Emissions Unit ID: HET003

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 16.1 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1038

Initial Operation Commencement Date: 06/16/2014

AQD Description: Inlet Air Heater 1 (EP06)

Company Equipment ID: EP06

Company Equipment Description: Inlet Air Heater 1 (EP06)

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			1.300000	2.700000	[STA] [LTA]		
NOx - Nitrogen Oxides			0.200000	0.400000	[STA] [LTA]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.010000	0.020000			[STP] [LTP]		
VOC - Volatile Organic Compounds	0.100000	0.200000			[STP] [LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC006
Process Name:
Company Process Description: Inlet Air Heater 1
Source Classification Code (SCC): 1-05-001-06

Control equipment(s) directly associated with this process

LNB001

Emission Unit : HET004

- Emission Unit Information

AQD Emissions Unit ID: HET004

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 16.1 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1038

Initial Operation Commencement Date: 06/16/2014

AQD Description: Inlet Air Heater 2 (EP07)

Company Equipment ID: EP07

Company Equipment Description: Inlet Air Heater 2 (EP07)

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			1.300000	2.700000	[STA] [LTA]		
NOx - Nitrogen Oxides			0.200000	0.400000	[STA] [LTA]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.010000	0.020000			[STP] [LTP]		
VOC - Volatile Organic Compounds	0.100000	0.200000			[STP] [LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC007
Process Name:
Company Process Description: Inlet Air Heater 2
Source Classification Code (SCC): 1-05-001-06

Control equipment(s) directly associated with this process

LNB002

Emission Unit : HET005

- Emission Unit Information

AQD Emissions Unit ID: HET005

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 16.1 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1038

Initial Operation Commencement Date: 06/16/2014

AQD Description: Inlet Air Heater 3 (EP08)

Company Equipment ID: EP08

Company Equipment Description: Inlet Air Heater 3 (EP08)

Operating Status: Operating

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			1.300000	2.700000	[STA] [LTA]		
NOx - Nitrogen Oxides			0.200000	0.400000	[STA] [LTA]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.010000	0.020000			[STP] [LTP]		
VOC - Volatile Organic Compounds	0.100000	0.200000			[STP] [LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC008
Process Name:
Company Process Description: Inlet Air Heater 3
Source Classification Code (SCC): 1-05-001-06

Control equipment(s) directly associated with this process

LNB003

Emission Unit : HET006

- Emission Unit Information

AQD Emissions Unit ID: HET006

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 16.1 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1038

Initial Operation Commencement Date:

AQD Description: Inlet Air Heater 4 (EP09)

Company Equipment ID: EP09

Company Equipment Description: Inlet Air Heater 4 (EP09)

Operating Status: Not Yet Installed

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			1.300000	2.700000	[STA] [LTA]		
NOx - Nitrogen Oxides			0.200000	0.400000	[STA] [LTA]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.010000	0.020000			[STP] [LTP]		
VOC - Volatile Organic Compounds	0.100000	0.200000			[STP] [LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC009
Process Name:
Company Process Description: Inlet Air Heater 4
Source Classification Code (SCC): 1-05-001-06

Control equipment(s) directly associated with this process

LNB004

Emission Unit : HET007

- Emission Unit Information

AQD Emissions Unit ID: HET007

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 16.1 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1038

Initial Operation Commencement Date:

AQD Description: Inlet Air Heater 5 (EP10)

Company Equipment ID: EP10

Company Equipment Description: Inlet Air Heater 5 (EP10)

Operating Status: Not Yet Installed

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			1.300000	2.700000	[STA] [LTA]		
NOx - Nitrogen Oxides			0.200000	0.400000	[STA] [LTA]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.010000			0.020000	[LTA] [STP]		
VOC - Volatile Organic Compounds	0.100000	0.200000			[STP] [LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC010
Process Name:
Company Process Description: Inlet Air Heater 5
Source Classification Code (SCC): 1-05-001-06

Control equipment(s) directly associated with this process

LNB005

Emission Unit : HET009

- Emission Unit Information

AQD Emissions Unit ID: HET009
Emission Unit Type: Heater/Chiller
Firing Type: Indirect
Heat Input Rating: 16.07 Units: MMBtu/hr
Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A
Heat Content of Fuel (BTU/scf): 1038
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 2CTG-IAH-2
Company Equipment Description: Inlet Air Heater 2CTG-IAH-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC037
Process Name:
Company Process Description: Inlet Air Heater 2CTG-IAH-2
Source Classification Code (SCC): 1-02-006-02

Release points(s) directly associated with this process

VER034

Emission Unit : HET010

- Emission Unit Information

AQD Emissions Unit ID: HET010
Emission Unit Type: Heater/Chiller
Firing Type: Indirect
Heat Input Rating: 16.07 Units: MMBtu/hr
Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A
Heat Content of Fuel (BTU/scf): 1038
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 3CTG-IAH-1
Company Equipment Description: Inlet Air Heater 3CTG-IAH-1
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC040
Process Name:
Company Process Description: Inlet Air Heater 3CTG-IAH-1
Source Classification Code (SCC): 1-02-006-02

Release points(s) directly associated with this process

VER037

Emission Unit : HET011

- Emission Unit Information

AQD Emissions Unit ID: HET011
Emission Unit Type: Heater/Chiller
Firing Type: Indirect
Heat Input Rating: 16.07 Units: MMBtu/hr
Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A
Heat Content of Fuel (BTU/scf): 1038
Initial Operation Commencement Date:

AQD Description:
Company Equipment ID: 3CTG-IAH-2
Company Equipment Description: Inlet Air Heater 3CTG-IAH-2
Operating Status: Not Yet Installed

Initial Construction Commencement Date:
Most Recent Construction/Modification Commencement Date:
Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

- Emission Process Information

Process ID: PRC041
Process Name:
Company Process Description: Inlet Air Heater 3CTG-IAH-2
Source Classification Code (SCC): 1-02-006-02

Release points(s) directly associated with this process

VER038

Emission Unit : BOL008

- Emission Unit Information

AQD Emissions Unit ID: BOL008

Emission Unit Type: Boiler

Heat Input Rating (MMBtu/hr): 24.68

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Model Name and Number: TBD

Initial Operation Commencement Date:

AQD Description: Auxiliary Boiler (EP14) - NEVER CONSTRUCTED (P0019966)

Company Equipment ID: EP14

Company Equipment Description: Auxiliary Boiler (EP14) - NEVER CONSTRUCTED (P0019966)

Operating Status: Permanently Shutdown Shutdown Date: 10/31/2019

Shutdown Notification Date: 10/31/2019

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Serial Number Tracking

Manufacturer Name	Serial Number	Effective Date
TBD	TBD	08/26/2015

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			0.900000	4.100000			
NOx - Nitrogen Oxides			0.400000	1.900000			

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

Emission Unit : CTW016

- Emission Unit Information

AQD Emissions Unit ID: CTW016

Emission Unit Type: Cooling Tower

Drift Rate (%): 0.0

Total Dissolved Solids (ppm): 23700.0000

Water Circulation Rate (gallons/min):

Initial Operation Commencement Date:

AQD Description: Cooling Tower (EP12) - NEVER CONSTRUCTED (P0019966)

Company Equipment ID: EP12

Company Equipment Description: Cooling Tower (EP12) - NEVER CONSTRUCTED (P0019966)

Operating Status: Permanently Shutdown

Shutdown Date: 10/31/2019

Shutdown Notification Date: 10/31/2019

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
PM10 Primary (includes filterables + condensibles)	0.400000	1.800000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.400000	1.800000			[STP] [LTP]		

- Idle Years

Year	Comment	Last Modified By	Last Modified Date

- Processes

Emission Unit : EGU004

- Emission Unit Information

AQD Emissions Unit ID: EGU004

Emission Unit Type: Electric Generating Unit

Unit Type: Turbine

Heat Input Rating (MMBtu/hr): 387.0

Primary Fuel Type: Pipeline Grade Natural Gas

Secondary Fuel Type: N/A

Manufacturer Name: General Electric

Model Name and Number: TBD

Initial Operation Commencement Date:

AQD Description: Combined Cycle Combustion Turbine CT02B (EP04) - Unit can be a GE LM6000 PF or a GE LM6000 PF+ - NEVER CONSTRUCTED (P0019966)

Company Equipment ID: EP04

Company Equipment Description: Combined Cycle Combustion Turbine CT02B (EP04) - NEVER CONSTRUCTED (P0019966)

Operating Status: Permanently Shutdown

Shutdown Date: 10/31/2019

Shutdown Notification Date: 10/31/2019

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			3.700000	31.700000	30-day rolling average = lb/hr		
Ammonia			6.500000	28.400000	10 ppm @ 15% O2		
NOx - Nitrogen Oxides			4.600000	28.700000	30-day rolling average = lb/hr		
PM Primary (includes filterables > 10 microns + condensibles)			4.000000	17.500000			
PM10 Primary (includes filterables + condensibles)			4.000000	17.500000			

PM2.5 Primary (includes filterables + condensibles)			4.000000	17.500000			
SO2 - Sulfur Dioxide	0.500000	2.600000			[STP]		
VOC - Volatile Organic Compounds			3.400000	16.000000			

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**

Emission Unit : EGU005

- Emission Unit Information

AQD Emissions Unit ID: EGU005

Emission Unit Type: Electric Generating Unit

Unit Type: Turbine

Heat Input Rating (MMBtu/hr): 387.0

Primary Fuel Type: Pipeline Grade Natural Gas

Secondary Fuel Type: N/A

Manufacturer Name: General Electric

Model Name and Number: TBD

Initial Operation Commencement Date:

AQD Description: Combined Cycle Combustion Turbine CT03A (EP05) - Unit can be a GE LM6000 PF or a GE LM6000 PF+ - NEVER CONSTRUCTED (P0019966)

Company Equipment ID: EP05

Company Equipment Description: Combined Cycle Combustion Turbine CT03A (EP05) - NEVER CONSTRUCTED (P0019966)

Operating Status: Permanently Shutdown

Shutdown Date: 10/31/2019

Shutdown Notification Date: 10/31/2019

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			3.700000	31.700000	30-day rolling average = lb/hr		
Ammonia			6.500000	28.400000	10 ppm @ 15% O2		
NOx - Nitrogen Oxides			4.600000	28.700000	30-day rolling average = lb/hr		
PM Primary (includes filterables > 10 microns + condensibles)			4.000000	17.500000			
PM10 Primary (includes filterables + condensibles)			4.000000	17.500000			

PM2.5 Primary (includes filterables + condensibles)			4.000000	17.500000			
SO2 - Sulfur Dioxide	0.500000	2.600000			[STP]		
VOC - Volatile Organic Compounds			3.400000	16.000000			

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**

Emission Unit : ENG001

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- Emission Unit Information

AQD Emissions Unit ID:	ENG001		
Emission Unit Type:	Engine		
Name Plate Rating:	839.00	Units:	hp
Site Rating:		Units:	
Primary Fuel Type:	Diesel	Secondary Fuel Type:	N/A
Model Name and Number:	Wagner Power Systems C18DITA	Engine:	4 Stroke Rich Burn
Type Of Use:			
Initial Operation Commencement Date:			

AQD Description:	Diesel Generator (EP15), EPA Tier 2
Company Equipment ID:	EP15
Company Equipment Description:	Diesel Generator (EP15), EPA Tier 2 ** Never Installed **
Operating Status:	Permanently Shutdown
Shutdown Date:	01/01/2021
Shutdown Notification Date:	01/01/2021
Initial Construction Commencement Date:	
Most Recent Construction/Modification Commencement Date:	
Most Recent Operation Commencement Date:	

- Serial Number Tracking

Serial Number	Manufacturer Name	Construction/Installation Commencement Date	Operation Commencement/Start-up Date	Order Date	Manufacture Date	Shutdown Date	Removal Date
TBD							

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide	0.900000	0.200000			[STP] [LTP]		
NOx - Nitrogen Oxides	10.800000	2.700000			[STP] [LTP]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.200000			[STP] [LTP]		
PM2.5	0.100000	0.200000			[STP]		

Primary (includes filterables + condensibles)					[LTP]		
SO2 - Sulfur Dioxide	0.010000	0.003000			[STP] [LTP]		
VOC - Volatile Organic Compounds	0.020000	0.005000			[STP] [LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC021

Process Name:

Company Process Description: Diesel Generator

Source Classification Code (SCC): 2-01-001-02

Release points(s) directly associated with this process

VER021

Emission Unit : HET001

- Emission Unit Information

AQD Emissions Unit ID: HET001

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 4.5 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1024

Initial Operation Commencement Date: 06/16/2014

AQD Description: Fuel Gas Heater 1 (EP18)

Company Equipment ID: EP18

Company Equipment Description: Fuel Gas Heater 1 (EP18) - never installed or operated.

Operating Status: Permanently Shutdown Shutdown Date: 03/14/2023

Shutdown Notification Date: 03/15/2023

Initial Construction Commencement Date: 04/08/2013

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide	0.600000	1.400000			[STP] [LTP]		
NOx - Nitrogen Oxides	1.100000	2.300000			[STP] [LTP]		
PM10 Primary (includes filterables + condensibles)	0.030000	0.100000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.030000	0.100000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.003000	0.010000			[STP] [LTP]		
VOC - Volatile	0.020000	0.100000			[STP] [LTP]		

Organic Compounds							

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC026

Process Name:

Company Process Description: Fuel Gas Heater 1

Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER026

Emission Unit : HET002

- Emission Unit Information

AQD Emissions Unit ID: HET002

Emission Unit Type: Heater/Chiller

Firing Type: Indirect

Heat Input Rating: 4.5 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1024

Initial Operation Commencement Date:

AQD Description: Fuel Gas Heater 2 (EP19)

Company Equipment ID: EP19

Company Equipment Description: Fuel Gas Heater 2 (EP19) ** Never Installed **

Operating Status: Permanently Shutdown Shutdown Date: 01/01/2021

Shutdown Notification Date: 01/01/2021

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide	0.600000	1.400000			[STP] [LTP]		
NOx - Nitrogen Oxides	1.100000	2.300000			[STP] [LTP]		
PM10 Primary (includes filterables + condensibles)	0.030000	0.100000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.030000	0.100000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.003000	0.010000			[STP] [LTP]		
VOC - Volatile			0.020000	0.100000	[STA] [LTA]		

Organic Compounds							

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC027

Process Name:

Company Process Description: Fuel Gas Heater 2

Source Classification Code (SCC): 3-10-004-04

Release points(s) directly associated with this process

VER027

Emission Unit : HET008

- Emission Unit Information

AQD Emissions Unit ID: HET008

Emission Unit Type: Heater/Chiller

Firing Type: Direct

Heat Input Rating: 16.1 Units: MMBtu/hr

Primary Fuel Type: Pipeline Grade Natural Gas Secondary Fuel Type: N/A

Heat Content of Fuel (BTU/scf): 1038

Initial Operation Commencement Date:

AQD Description: Inlet Air Heater 6 (EP11)

Company Equipment ID: EP11

Company Equipment Description: Inlet Air Heater permitted in original construction permit (CT-12636) and never built.

Operating Status: Permanently Shutdown Shutdown Date: 03/10/2023

Shutdown Notification Date: 03/10/2023

Initial Construction Commencement Date:

Most Recent Construction/Modification Commencement Date:

Most Recent Operation Commencement Date:

- Permitted Emissions

Pollutant	Potential Emissions (Lbs/hour)	Potential Emissions (Tons/Year)	Allowable Emissions (Lbs/Hour)	Allowable Emissions (Tons/Year	Comments	Last Modified By	Last Modified Date
CO - Carbon Monoxide			1.300000	2.700000	[STA] [LTA]		
NOx - Nitrogen Oxides			0.200000	0.400000	[STA] [LTA]		
PM10 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
PM2.5 Primary (includes filterables + condensibles)	0.100000	0.300000			[STP] [LTP]		
SO2 - Sulfur Dioxide	0.010000	0.020000			[STP] [LTP]		
VOC -	0.100000	0.200000			[STP]		

Volatile Organic Compounds					[LTP]		

- **Idle Years**

Year	Comment	Last Modified By	Last Modified Date

- **Processes**
  - **Emission Process Information**

Process ID: PRC011

Process Name:

Company Process Description: Inlet Air Heater 6

Source Classification Code (SCC): 1-05-001-06

Control equipment(s) directly associated with this process

LNB006

Control Equipment : CNC001

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC001

AQD Description: Selective Catalytic Reduction - Ammonia Injection

Company Control Equipment ID: SCR

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia Injection

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: 1

Reagent Slip Concentration: 1

Reagent Slip Concentration % O2: 1

Inlet Gas Flow Rate: 1

Inlet Gas Temp: 1

Outlet Gas Temp: 1

Air Fuel Ratio Controller: 1

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	90	90	100	90

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

OXI001

Control Equipment : CNC002

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC002

AQD Description: Selective Catalytic Reduction - Ammonia Injection

Company Control Equipment ID: SCR

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia Injection

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: 1

Reagent Slip Concentration: 1

Reagent Slip Concentration % O2: 1

Inlet Gas Flow Rate: 1

Inlet Gas Temp: 1

Outlet Gas Temp: 1

Air Fuel Ratio Controller: 1

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	90	90	100	90

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

OXI002

Control Equipment : CNC003

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC003

AQD Description: Selective Catalytic Reduction - Ammonia Injection

Company Control Equipment ID: SCR

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia Injection

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: 1

Reagent Slip Concentration: 1

Reagent Slip Concentration % O2: 1

Inlet Gas Flow Rate: 1

Inlet Gas Temp: 1

Outlet Gas Temp: 1

Air Fuel Ratio Controller: 1

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	90	90	100	90

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

OXI003

Control Equipment : CNC004

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC004

AQD Description: Selective Catalytic Reduction - Ammonia Injection

Company Control Equipment ID: SCR

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia Injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer: TBD

Model: TBD

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 308769

Inlet Gas Temp: 214

Outlet Gas Temp: 214

Air Fuel Ratio Controller: 214

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	90	90	100	90

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

OXI004

Control Equipment : CNC005

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC005

AQD Description: Selective Catalytic Reduction - Ammonia Injection

Company Control Equipment ID: SCR

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia Injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer: TBD

Model: TBD

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 308769

Inlet Gas Temp: 214

Outlet Gas Temp: 214

Air Fuel Ratio Controller: 214

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	90	90	100	90

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

OXI005

Control Equipment : CNC006

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC006

AQD Description:

Company Control Equipment ID: 2CTG-TRB-2

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 594554

Inlet Gas Temp: 850

Outlet Gas Temp: 836

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	88	88	100	88

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER035

Control Equipment : CNC007

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC007

AQD Description:

Company Control Equipment ID: 3CTG-TRB-1

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 594554

Inlet Gas Temp: 850

Outlet Gas Temp: 836

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	88	88	100	88

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER036

Control Equipment : CNC008

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC008

AQD Description:

Company Control Equipment ID: 3CTG-TRB-2

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 594554

Inlet Gas Temp: 850

Outlet Gas Temp: 836

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	88	88	100	88

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER039

Control Equipment : CNC009

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC009

AQD Description:

Company Control Equipment ID: 4REB-ENG-1

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER040

Control Equipment : CNC010

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC010

AQD Description:

Company Control Equipment ID: 4REB-ENG-2

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER040

Control Equipment : CNC011

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC011

AQD Description:

Company Control Equipment ID: 4REB-ENG-3

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER040

Control Equipment : CNC012

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC012

AQD Description:

Company Control Equipment ID: 4REB-ENG-4

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER040

Control Equipment : CNC013

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC013

AQD Description:

Company Control Equipment ID: 4REB-ENG-5

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER040

Control Equipment : CNC014

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC014

AQD Description:

Company Control Equipment ID: 4REB-ENG-6

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER040

Control Equipment : CNC015

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC015

AQD Description:

Company Control Equipment ID: 5REB-ENG-1

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER046

Control Equipment : CNC016

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC016

AQD Description:

Company Control Equipment ID: 5REB-ENG-2

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER046

Control Equipment : CNC017

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC017

AQD Description:

Company Control Equipment ID: 5REB-ENG-3

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER046

Control Equipment : CNC018

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC018

AQD Description:

Company Control Equipment ID: 5REB-ENG-4

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER046

Control Equipment : CNC019

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC019

AQD Description:

Company Control Equipment ID: 5REB-ENG-5

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER046

Control Equipment : CNC020

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC020

AQD Description:

Company Control Equipment ID: 5REB-ENG-6

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER046

Control Equipment : CNC021

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC021

AQD Description:

Company Control Equipment ID: 6REB-ENG-1

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER052

Control Equipment : CNC022

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC022

AQD Description:

Company Control Equipment ID: 6REB-ENG-2

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER052

Control Equipment : CNC023

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC023

AQD Description:

Company Control Equipment ID: 6REB-ENG-3

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER052

Control Equipment : CNC024

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC024

AQD Description:

Company Control Equipment ID: 6REB-ENG-4

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER052

Control Equipment : CNC025

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC025

AQD Description:

Company Control Equipment ID: 6REB-ENG-5

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER052

Control Equipment : CNC026

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC026

AQD Description:

Company Control Equipment ID: 6REB-ENG-6

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER052

Control Equipment : CNC027

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC027

AQD Description:

Company Control Equipment ID: 7REB-ENG-1

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER058

Control Equipment : CNC028

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC028

AQD Description:

Company Control Equipment ID: 7REB-ENG-2

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER058

Control Equipment : CNC029

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC029

AQD Description:

Company Control Equipment ID: 7REB-ENG-3

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER058

Control Equipment : CNC030

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC030

AQD Description:

Company Control Equipment ID: 7REB-ENG-4

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER058

Control Equipment : CNC031

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC031

AQD Description:

Company Control Equipment ID: 7REB-ENG-5

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER058

Control Equipment : CNC032

- Control Equipment Information

Equipment Type: Catalytic NOx Control Technology

Control Equipment ID: CNC032

AQD Description:

Company Control Equipment ID: 7REB-ENG-6

Company Control Equipment Description: Selective Catalytic Reduction - Ammonia injection

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalytic Reduction Type: Selective Catalytic

Reagent Type: Ammonia

Reagent Injection Rate - specify units: TBD

Reagent Slip Concentration: 10000

Reagent Slip Concentration % O2: 15

Inlet Gas Flow Rate: 58289

Inlet Gas Temp: 648

Outlet Gas Temp: 638

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	95	95	100	95

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER058

Control Equipment : FGR001

- Control Equipment Information

Equipment Type: Flue Gas Recirculation

Control Equipment ID: FGR001

AQD Description: Flue Gas Recirculation

Company Control Equipment ID: FGR

Company Control Equipment Description: Flue Gas Recirculation

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER028

Control Equipment : LNB001

- Control Equipment Information

Equipment Type:	Low NOx Burner		
Control Equipment ID:	LNB001		
AQD Description:	Low NOx Burner		
Company Control Equipment ID:	LNB		
Company Control Equipment Description:	Low NOx Burner		
Operating Status:	Not Operating	Initial Installation Date:	
Manufacturer:		Model:	

- Specific Equipment Type information

Inlet Gas Temp:	
Burner Type:	Low Nox Burner
Sec. Outlet Gas Temp:	

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER006

Control Equipment : LNB002

- Control Equipment Information

Equipment Type: Low NOx Burner

Control Equipment ID: LNB002

AQD Description: Low NOx Burner

Company Control Equipment ID: LNB

Company Control Equipment Description: Low NOx Burner

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Inlet Gas Temp:

Burner Type: Low Nox Burner

Sec. Outlet Gas Temp:

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER007

Control Equipment : LNB003

- Control Equipment Information

Equipment Type: Low NOx Burner

Control Equipment ID: LNB003

AQD Description: Low NOx Burner

Company Control Equipment ID: LNB

Company Control Equipment Description: Low NOx Burner

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Inlet Gas Temp:

Burner Type: Low Nox Burner

Sec. Outlet Gas Temp:

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER008

Control Equipment : LNB004

- Control Equipment Information

Equipment Type: Low NOx Burner

Control Equipment ID: LNB004

AQD Description: Low NOx Burner

Company Control Equipment ID: LNB

Company Control Equipment Description: Low NOx Burner

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Inlet Gas Temp:

Burner Type: Low Nox Burner

Sec. Outlet Gas Temp:

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER009

Control Equipment : LNB005

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Low NOx Burner

Control Equipment ID: LNB005

AQD Description: Low NOx Burner

Company Control Equipment ID: LNB

Company Control Equipment Description: Low NOx Burner

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Inlet Gas Temp:

Burner Type: Low Nox Burner

Sec. Outlet Gas Temp:

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER010

Control Equipment : LNB006

- Control Equipment Information

Equipment Type: Low NOx Burner

Control Equipment ID: LNB006

AQD Description: Low NOx Burner

Company Control Equipment ID: LNB

Company Control Equipment Description: Low NOx Burner

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Inlet Gas Temp:

Burner Type: Low Nox Burner

Sec. Outlet Gas Temp:

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER011

Control Equipment : LNB007

Nov 20 2025, 10:18:21

- Control Equipment Information

Equipment Type: Low NOx Burner

Control Equipment ID: LNB007

AQD Description: Low NOx Burner

Company Control Equipment ID: LNB

Company Control Equipment Description: Low NOx Burner

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Inlet Gas Temp:

Burner Type: Low Nox Burner

Sec. Outlet Gas Temp:

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
NOx - Nitrogen Oxides	0	0	100	0

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

FGR001

Control Equipment : OXI001

- Control Equipment Information

Equipment Type:	Oxidation Catalyst		
Control Equipment ID:	OXI001		
AQD Description:	Oxidation Catalyst		
Company Control Equipment ID:	OxCat		
Company Control Equipment Description:	Oxidation Catalyst		
Operating Status:	Operating	Initial Installation Date:	
Manufacturer:		Model:	

- Specific Equipment Type information

Catalyst Type:	Oxidation Catalyst
Air Fuel Ratio Controller:	Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	84	84	100	84

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER001

Control Equipment : OXI002

- Control Equipment Information

Equipment Type:	Oxidation Catalyst		
Control Equipment ID:	OXI002		
AQD Description:	Oxidation Catalyst		
Company Control Equipment ID:	OxCat		
Company Control Equipment Description:	Oxidation Catalyst		
Operating Status:	Operating	Initial Installation Date:	
Manufacturer:		Model:	

- Specific Equipment Type information

Catalyst Type:	Oxidation Catalyst
Air Fuel Ratio Controller:	Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	84	84	100	84

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER002

Control Equipment : OXI003

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI003

AQD Description: Oxidation Catalyst

Company Control Equipment ID: OxCat

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	84	84	100	84

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER003

Control Equipment : OXI004

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI004

AQD Description: Oxidation Catalyst

Company Control Equipment ID: OxCat

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer: TBD

Model: TBD

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	84	84	100	84

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER004

Control Equipment : OXI005

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI005

AQD Description: Oxidation Catalyst

Company Control Equipment ID: OxCat

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer: TBD

Model: TBD

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	84	84	100	84

- Associated Control Equipments And Release Points

Release points(s) directly associated with this control equipment

VER005

Control Equipment : OXI006

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI006

AQD Description:

Company Control Equipment ID: 2CTG-TRB-2

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	83	83	100	83
VOC - Volatile Organic Compounds	25	25	100	25

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC006

Control Equipment : OXI007

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI007

AQD Description:

Company Control Equipment ID: 3CTG-TRB-1

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	83	83	100	83
VOC - Volatile Organic Compounds	25	25	100	25

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC007

Control Equipment : OXI008

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI008

AQD Description:

Company Control Equipment ID: 3CTG-TRB-2

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	83	83	100	83
VOC - Volatile Organic Compounds	25	25	100	25

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC008

Control Equipment : OXI009

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI009

AQD Description:

Company Control Equipment ID: 4REB-ENG-1

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC009

Control Equipment : OXI010

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI010

AQD Description:

Company Control Equipment ID: 4REB-ENG-2

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC010

Control Equipment : OXI011

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI011

AQD Description:

Company Control Equipment ID: 4REB-ENG-3

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC011

Control Equipment : OXI012

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI012

AQD Description:

Company Control Equipment ID: 4REB-ENG-4

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC012

Control Equipment : OXI013

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI013

AQD Description:

Company Control Equipment ID: 4REB-ENG-5

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC013

Control Equipment : OXI014

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI014

AQD Description:

Company Control Equipment ID: 4REB-ENG-6

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC014

Control Equipment : OXI015

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI015

AQD Description:

Company Control Equipment ID: 5REB-ENG-1

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC015

Control Equipment : OXI016

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI016

AQD Description:

Company Control Equipment ID: 5REB-ENG-2

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC016

Control Equipment : OXI017

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI017

AQD Description:

Company Control Equipment ID: 5REB-ENG-3

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC017

Control Equipment : OXI018

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI018

AQD Description:

Company Control Equipment ID: 5REB-ENG-4

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC018

Control Equipment : OXI019

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI019

AQD Description:

Company Control Equipment ID: 5REB-ENG-5

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC019

Control Equipment : OXI020

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI020

AQD Description:

Company Control Equipment ID: 5REB-ENG-6

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC020

Control Equipment : OXI021

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI021

AQD Description:

Company Control Equipment ID: 6REB-ENG-1

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC021

Control Equipment : OXI022

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI022

AQD Description:

Company Control Equipment ID: 6REB-ENG-2

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC022

Control Equipment : OXI023

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI023

AQD Description:

Company Control Equipment ID: 6REB-ENG-3

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC023

Control Equipment : OXI024

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI024

AQD Description:

Company Control Equipment ID: 6REB-ENG-4

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC024

Control Equipment : OXI025

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI025

AQD Description:

Company Control Equipment ID: 6REB-ENG-5

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC025

Control Equipment : OXI026

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI026

AQD Description:

Company Control Equipment ID: 6REB-ENG-6

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC026

Control Equipment : OXI027

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI027

AQD Description:

Company Control Equipment ID: 7REB-ENG-1

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC027

Control Equipment : OXI028

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI028

AQD Description:

Company Control Equipment ID: 7REB-ENG-2

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC028

Control Equipment : OXI029

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI029

AQD Description:

Company Control Equipment ID: 7REB-ENG-3

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC029

Control Equipment : OXI030

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI030

AQD Description:

Company Control Equipment ID: 7REB-ENG-4

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC030

Control Equipment : OXI031

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI031

AQD Description:

Company Control Equipment ID: 7REB-ENG-5

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC031

Control Equipment : OXI032

- Control Equipment Information

Equipment Type: Oxidation Catalyst

Control Equipment ID: OXI032

AQD Description:

Company Control Equipment ID: 7REB-ENG-6

Company Control Equipment Description: Oxidation Catalyst

Operating Status: Not Operating

Initial Installation Date:

Manufacturer:

Model:

- Specific Equipment Type information

Catalyst Type: Oxidation Catalyst

Air Fuel Ratio Controller: Yes

- Pollutants Controlled

Pollutant	Design Control Efficiency(%)	Operating Control Efficiency(%)	Capture Efficiency(%)	Total Capture Control(%)
CO - Carbon Monoxide	90	90	100	90
VOC - Volatile Organic Compounds	65	65	100	65

- Associated Control Equipments And Release Points

Control equipment(s) directly associated with this control equipment

CNC032

Release Point : VER034

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER034
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	2CTG-IAH-2
Company Release Point Description:	Inlet Air Heater 2CTG-IAH-2
Operating Status:	Not Operating
Base Elevation (ft):	5948.16

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.04	Exit Gas Flow Rate (acfm):	11.69
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12238	Longitude:	-104.72164

Release Point : VER035

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER035
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	2CTG-TRB-2
Company Release Point Description:	Simple Cycle Combustion Turbine 2CTG-TRB-2
Operating Status:	Not Operating
Base Elevation (ft):	5948.16

- Stack Details

Stack Height (ft):	80.0	Stack Diameter (ft):	9.25
Exit Gas Velocity (ft/s):	144.66	Exit Gas Flow Rate (acfm):	583274.59
Exit Gas Temp (F):	842.0		

- Release Latitude and Longitude

Latitude:	41.12175	Longitude:	-104.72133

Release Point : VER037

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER037
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	3CTG-IAH-1
Company Release Point Description:	Inlet Air Heater 3CTG-IAH-1
Operating Status:	Not Operating
Base Elevation (ft):	5948.16

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.04	Exit Gas Flow Rate (acfm):	11.69
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12211	Longitude:	-104.72167

Release Point : VER038

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER038
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	3CTG-IAH-2
Company Release Point Description:	Inlet Air Heater 3CTG-IAH-2
Operating Status:	Not Operating
Base Elevation (ft):	5948.16

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.04	Exit Gas Flow Rate (acfm):	11.69
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12184	Longitude:	-104.72168

Release Point : VER036

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER036
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	3CTG-TRB-1
Company Release Point Description:	Simple Cycle Combustion Turbine 3CTG-TRB-1
Operating Status:	Not Operating
Base Elevation (ft):	5948.16

- Stack Details

Stack Height (ft):	80.0	Stack Diameter (ft):	9.25
Exit Gas Velocity (ft/s):	144.66	Exit Gas Flow Rate (acfm):	583274.59
Exit Gas Temp (F):	842.0		

- Release Latitude and Longitude

Latitude:	41.12231	Longitude:	-104.72133

Release Point : VER039

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER039
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	3CTG-TRB-2
Company Release Point Description:	Simple Cycle Combustion Turbine 3CTG-TRB-2
Operating Status:	Not Operating
Base Elevation (ft):	5948.16

- Stack Details

Stack Height (ft):	80.0	Stack Diameter (ft):	9.25
Exit Gas Velocity (ft/s):	144.66	Exit Gas Flow Rate (acfm):	583274.59
Exit Gas Temp (F):	842.0		

- Release Latitude and Longitude

Latitude:	41.12202	Longitude:	-104.72135

Release Point : VER040

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER040
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	4REB-ENG
Company Release Point Description:	Each block of 6 Wartsila units will share a common stack. Units 4REB-ENG-1 through 4REB-ENG-6 will be exhausted out of combined stack 4REB-ENG.
Operating Status:	Not Operating
Base Elevation (ft):	5944.88

- Stack Details

Stack Height (ft):	150.0	Stack Diameter (ft):	12.86
Exit Gas Velocity (ft/s):	108.02	Exit Gas Flow Rate (acfm):	841835.52
Exit Gas Temp (F):	808.0		

- Release Latitude and Longitude

Latitude:	41.123	Longitude:	-104.71807

Release Point : VER046

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER046
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	5REB-ENG
Company Release Point Description:	Each block of 6 Wartsila units will share a common stack. Units 5REB-ENG-1 through 5REB-ENG-6 will be exhausted out of combined stack 5REB-ENG.
Operating Status:	Not Operating
Base Elevation (ft):	5944.88

- Stack Details

Stack Height (ft):	150.0	Stack Diameter (ft):	12.86
Exit Gas Velocity (ft/s):	108.02	Exit Gas Flow Rate (acfm):	841835.52
Exit Gas Temp (F):	808.0		

- Release Latitude and Longitude

Latitude:	41.12327	Longitude:	-104.71807

Release Point : VER052

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER052
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	6REB-ENG
Company Release Point Description:	Each block of 6 Wartsila units will share a common stack. Units 6REB-ENG-1 through 6REB-ENG-6 will be exhausted out of combined stack 6REB-ENG.
Operating Status:	Not Operating
Base Elevation (ft):	5942.03

- Stack Details

Stack Height (ft):	150.0	Stack Diameter (ft):	12.86
Exit Gas Velocity (ft/s):	108.02	Exit Gas Flow Rate (acfm):	841835.52
Exit Gas Temp (F):	808.0		

- Release Latitude and Longitude

Latitude:	41.12224	Longitude:	-104.71805

Release Point : VER058

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER058
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	7REB-ENG
Company Release Point Description:	Each block of 6 Wartsila units will share a common stack. Units 7REB-ENG-1 through 7REB-ENG-6 will be exhausted out of combined stack 7REB-ENG.
Operating Status:	Not Operating
Base Elevation (ft):	5930.91

- Stack Details

Stack Height (ft):	150.0	Stack Diameter (ft):	12.86
Exit Gas Velocity (ft/s):	108.02	Exit Gas Flow Rate (acfm):	841835.52
Exit Gas Temp (F):	808.0		

- Release Latitude and Longitude

Latitude:	41.12126	Longitude:	-104.71805

Release Point : VER033

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER033
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	Blackstart
Company Release Point Description:	Black Start Generator Stack
Operating Status:	Operating
Base Elevation (ft):	5941.6

- Stack Details

Stack Height (ft):	14.8	Stack Diameter (ft):	1.0
Exit Gas Velocity (ft/s):	191.11	Exit Gas Flow Rate (acfm):	9005.85
Exit Gas Temp (F):	1006.0		

- Release Latitude and Longitude

Latitude:	41.12266	Longitude:	-104.72081

Release Point : VER001

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER001
Release Type:	Vertical
AQD Description:	Combined Cycle Combustion Turbine CT01A
Company Release Point ID:	EP01
Company Release Point Description:	Combined Cycle Combustion Turbine CT01A
Operating Status:	Operating
Base Elevation (ft):	5941.6

- Stack Details

Stack Height (ft):	75.13	Stack Diameter (ft):	8.01
Exit Gas Velocity (ft/s):	102.36	Exit Gas Flow Rate (acfm):	309482.75
Exit Gas Temp (F):	214.0		

- Release Latitude and Longitude

Latitude:	41.12344	Longitude:	-104.72099

Release Point : VER002

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER002
Release Type:	Vertical
AQD Description:	Combined Cycle Combustion Turbine CT01B
Company Release Point ID:	EP02
Company Release Point Description:	Combined Cycle Combustion Turbine CT01B
Operating Status:	Operating
Base Elevation (ft):	5941.6

- Stack Details

Stack Height (ft):	75.13	Stack Diameter (ft):	8.01
Exit Gas Velocity (ft/s):	102.36	Exit Gas Flow Rate (acfm):	309482.75
Exit Gas Temp (F):	214.0		

- Release Latitude and Longitude

Latitude:	41.12321	Longitude:	-104.72099

Release Point : VER003

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER003
Release Type:	Vertical
AQD Description:	Simple Cycle Combustion Turbine CT02A
Company Release Point ID:	EP03
Company Release Point Description:	Simple Cycle Combustion Turbine CT02A
Operating Status:	Operating
Base Elevation (ft):	5941.6

- Stack Details

Stack Height (ft):	75.13	Stack Diameter (ft):	10.01
Exit Gas Velocity (ft/s):	123.69	Exit Gas Flow Rate (acfm):	584041.69
Exit Gas Temp (F):	842.0		

- Release Latitude and Longitude

Latitude:	41.12253	Longitude:	-104.72134

Release Point : VER004

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER004
Release Type:	Vertical
AQD Description:	Simple Cycle Combustion Turbine CT02B
Company Release Point ID:	EP04
Company Release Point Description:	Simple Cycle Combustion Turbine CT02B
Operating Status:	Not Operating
Base Elevation (ft):	5941.6

- Stack Details

Stack Height (ft):	75.13	Stack Diameter (ft):	10.01
Exit Gas Velocity (ft/s):	123.69	Exit Gas Flow Rate (acfm):	584041.69
Exit Gas Temp (F):	842.0		

- Release Latitude and Longitude

Latitude:	41.1223	Longitude:	-104.72134

Release Point : VER005

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER005
Release Type:	Vertical
AQD Description:	Simple Cycle Combustion Turbine CT03A
Company Release Point ID:	EP05
Company Release Point Description:	Simple Cycle Combustion Turbine CT03A
Operating Status:	Operating
Base Elevation (ft):	5941.6

- Stack Details

Stack Height (ft):	75.13	Stack Diameter (ft):	10.01
Exit Gas Velocity (ft/s):	123.69	Exit Gas Flow Rate (acfm):	584041.69
Exit Gas Temp (F):	842.0		

- Release Latitude and Longitude

Latitude:	41.12163	Longitude:	-104.72134

Release Point : VER006

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER006
Release Type:	Vertical
AQD Description:	Inlet Air Heater 1
Company Release Point ID:	EP06
Company Release Point Description:	Inlet Air Heater 1
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.03	Exit Gas Flow Rate (acfm):	13.0
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12371	Longitude:	-104.72074

Release Point : VER007

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER007
Release Type:	Vertical
AQD Description:	Inlet Air Heater 2
Company Release Point ID:	EP07
Company Release Point Description:	Inlet Air Heater 2
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.03	Exit Gas Flow Rate (acfm):	13.0
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12278	Longitude:	-104.72165

Release Point : VER008

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER008
Release Type:	Vertical
AQD Description:	Inlet Air Heater 3
Company Release Point ID:	EP08
Company Release Point Description:	Inlet Air Heater 3
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.03	Exit Gas Flow Rate (acfm):	13.0
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12187	Longitude:	-104.72166

Release Point : VER009

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER009
Release Type:	Vertical
AQD Description:	Inlet Air Heater 4
Company Release Point ID:	EP09
Company Release Point Description:	Inlet Air Heater 4
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.03	Exit Gas Flow Rate (acfm):	13.0
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12371	Longitude:	-104.72068

Release Point : VER010

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER010
Release Type:	Vertical
AQD Description:	Inlet Air Heater 5
Company Release Point ID:	EP10
Company Release Point Description:	Inlet Air Heater 5
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.03	Exit Gas Flow Rate (acfm):	13.0
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12278	Longitude:	-104.7217

Release Point : VER011

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER011
Release Type:	Vertical
AQD Description:	Inlet Air Heater 6
Company Release Point ID:	EP11
Company Release Point Description:	Inlet Air Heater 6
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	2.49
Exit Gas Velocity (ft/s):	0.03	Exit Gas Flow Rate (acfm):	13.0
Exit Gas Temp (F):	160.0		

- Release Latitude and Longitude

Latitude:	41.12187	Longitude:	-104.7217

Release Point : VER030

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER030
Release Type:	Vertical
AQD Description:	Cooling tower 2
Company Release Point ID:	EP12A
Company Release Point Description:	Cooling Tower 2
Operating Status:	Not Operating
Base Elevation (ft):	5941.0

- Stack Details

Stack Height (ft):	26.0	Stack Diameter (ft):	30.0
Exit Gas Velocity (ft/s):	17.7	Exit Gas Flow Rate (acfm):	250000.0
Exit Gas Temp (F):	90.0		

- Release Latitude and Longitude

Latitude:	41.122	Longitude:	-104.7196

Release Point : VER031

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER031
Release Type:	Vertical
AQD Description:	Cooling tower 2
Company Release Point ID:	EP12B
Company Release Point Description:	Cooling Tower 2
Operating Status:	Not Operating
Base Elevation (ft):	5941.0

- Stack Details

Stack Height (ft):	26.0	Stack Diameter (ft):	30.0
Exit Gas Velocity (ft/s):	17.7	Exit Gas Flow Rate (acfm):	250000.0
Exit Gas Temp (F):	90.0		

- Release Latitude and Longitude

Latitude:	41.122	Longitude:	-104.7195

Release Point : VER032

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER032
Release Type:	Vertical
AQD Description:	Cooling tower 2
Company Release Point ID:	EP12C
Company Release Point Description:	Cooling Tower 2
Operating Status:	Not Operating
Base Elevation (ft):	5941.0

- Stack Details

Stack Height (ft):	26.0	Stack Diameter (ft):	30.0
Exit Gas Velocity (ft/s):	17.7	Exit Gas Flow Rate (acfm):	250000.0
Exit Gas Temp (F):	90.0		

- Release Latitude and Longitude

Latitude:	41.1229	Longitude:	-104.7194

Release Point : VER021

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER021
Release Type:	Vertical
AQD Description:	Diesel Generator
Company Release Point ID:	EP15
Company Release Point Description:	Diesel Generator
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	0.66
Exit Gas Velocity (ft/s):	228.35	Exit Gas Flow Rate (acfm):	4785.0
Exit Gas Temp (F):	995.0		

- Release Latitude and Longitude

Latitude:	41.12336	Longitude:	-104.72288

Release Point : VER022

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER022
Release Type:	Vertical
AQD Description:	Diesel Fire Pump
Company Release Point ID:	EP16
Company Release Point Description:	Diesel Fire Pump
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	0.49
Exit Gas Velocity (ft/s):	158.46	Exit Gas Flow Rate (acfm):	1867.0
Exit Gas Temp (F):	842.0		

- Release Latitude and Longitude

Latitude:	41.12336	Longitude:	-104.72282

Release Point : VER023

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER023
Release Type:	Vertical
AQD Description:	Cooling Tower Cell 1A
Company Release Point ID:	EP17A
Company Release Point Description:	Cooling Tower Cell 1A
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	25.92	Stack Diameter (ft):	29.99
Exit Gas Velocity (ft/s):	17.72	Exit Gas Flow Rate (acfm):	750000.0
Exit Gas Temp (F):	89.0		

- Release Latitude and Longitude

Latitude:	41.12383	Longitude:	-104.7196

Release Point : VER024

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER024
Release Type:	Vertical
AQD Description:	Cooling Tower Cell 1B
Company Release Point ID:	EP17B
Company Release Point Description:	Cooling Tower Cell 1B
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	25.92	Stack Diameter (ft):	29.99
Exit Gas Velocity (ft/s):	17.72	Exit Gas Flow Rate (acfm):	750000.0
Exit Gas Temp (F):	89.0		

- Release Latitude and Longitude

Latitude:	41.12378	Longitude:	-104.71948

Release Point : VER025

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER025
Release Type:	Vertical
AQD Description:	Cooling Tower Cell 1C
Company Release Point ID:	EP17C
Company Release Point Description:	Cooling Tower Cell 1C
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	25.92	Stack Diameter (ft):	29.99
Exit Gas Velocity (ft/s):	17.72	Exit Gas Flow Rate (acfm):	750000.0
Exit Gas Temp (F):	89.0		

- Release Latitude and Longitude

Latitude:	41.12374	Longitude:	-104.71935

Release Point : VER026

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER026
Release Type:	Vertical
AQD Description:	Fuel Gas Heater 1
Company Release Point ID:	EP18
Company Release Point Description:	Fuel Gas Heater 1
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	1.97
Exit Gas Velocity (ft/s):	12.8	Exit Gas Flow Rate (acfm):	2340.9
Exit Gas Temp (F):	878.0		

- Release Latitude and Longitude

Latitude:	41.12134	Longitude:	-104.71987

Release Point : VER027

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER027
Release Type:	Vertical
AQD Description:	Fuel Gas Heater 2
Company Release Point ID:	EP19
Company Release Point Description:	Fuel Gas Heater 2
Operating Status:	Operating
Base Elevation (ft):	5940.49

- Stack Details

Stack Height (ft):	20.01	Stack Diameter (ft):	1.97
Exit Gas Velocity (ft/s):	12.8	Exit Gas Flow Rate (acfm):	2340.9
Exit Gas Temp (F):	878.0		

- Release Latitude and Longitude

Latitude:	41.12134	Longitude:	-104.71977

Release Point : VER028

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER028
Release Type:	Vertical
AQD Description:	Auxiliary Boiler
Company Release Point ID:	EP20
Company Release Point Description:	Auxiliary Boiler Exit gas flow is 5,591 SCFM @ 70F
Operating Status:	Operating
Base Elevation (ft):	5936.0

- Stack Details

Stack Height (ft):	42.0	Stack Diameter (ft):	2.33
Exit Gas Velocity (ft/s):	60.94	Exit Gas Flow Rate (acfm):	11487.0
Exit Gas Temp (F):	435.0		

- Release Latitude and Longitude

Latitude:	41.12372	Longitude:	-104.72086

Release Point : VER064

Nov 20 2025, 10:18:21

- Release Point Information

Release Point ID:	VER064
Release Type:	Vertical
AQD Description:	
Company Release Point ID:	FP-ENG-2
Company Release Point Description:	400 HP Diesel Emergency Fire Pump
Operating Status:	Not Operating
Base Elevation (ft):	5945.08

- Stack Details

Stack Height (ft):	12.0	Stack Diameter (ft):	0.5
Exit Gas Velocity (ft/s):	174.26	Exit Gas Flow Rate (acfm):	2052.95
Exit Gas Temp (F):	1097.0		

- Release Latitude and Longitude

Latitude:	41.12291	Longitude:	-104.71971

- Continuous Monitor Information

Continuous Monitor ID: CM001
Monitor Details: EGU001 (CTO1) - NOx Combine Cycle Unit
Manufacturer: Teledyne Monitor Labs
Model Number: T200M
Active Limits: LIM001, LIM002, LIM003, LIM004, LIM005
Associated Object(s): EGU001, VER001

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM001
Monitor ID: CM001
Limit Description: EGU001 (CT01)-NOx (3ppm @ 15% O2_1 Hr. Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/21/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM002
Monitor ID: CM001
Limit Description: EGU001 (CT01)-NOx (4.6 lb/hr_30-Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/21/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM003
Monitor ID: CM001
Limit Description: EGU001 (CT01)-NOx (25.5 TPY_365 Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/21/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM004
Monitor ID: CM001
Limit Description: EGU001 (CT01)-NOx (22.5 lb/hr _Startup /Shut Down
Source of Limit: CT-12636
Start Monitoring Limit: 11/21/2014
End Monitoring Limit:
Additional Information:

- **Facility CEM/COM/CMS Limit Detail**

Limit ID:	LIM005
Monitor ID:	CM001
Limit Description:	EGU001 (CT01)-NOx (0.015 lbs/mmBtu)
Source of Limit:	40CFR75
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	40CFR75 Acid Rain Regulation

- **Monitor Tracking Details**
  - **Monitor Equipment Detail**

Manufacturer:	Teledyne Monitor Labs
Model Number:	T200M
Serial Number:	294
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	09/24/2014
Removal Date:	
Additional Information:	

- Continuous Monitor Information

Continuous Monitor ID:	CM002
Monitor Details:	EGU001 (CTO1) - O2 Combine Cycle Unit
Manufacturer:	Teledyne Monitor Labs
Model Number:	T200MO2
Active Limits:	LIM001
Associated Object(s):	EGU001, VER001

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID:	LIM001
Monitor ID:	CM002
Limit Description:	EGU001 (CTO1) - O2 Combine Cycle Unit (Diluent Only)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

- Monitor Tracking Details

- Monitor Equipment Detail

Manufacturer:	Teledyne Monitor Labs
Model Number:	T200MO2
Serial Number:	294
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	09/24/2014
Removal Date:	
Additional Information:	

- Continuous Monitor Information

Continuous Monitor ID: CM003
Monitor Details: EGU001 (CTO1) - CO Combine Cycle Unit
Manufacturer: Teledyne Monitor Labs
Model Number: T300U
Active Limits: LIM004, LIM001, LIM002, LIM003
Associated Object(s): EGU001, VER001

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM004
Monitor ID: CM003
Limit Description: EGU001 (CTO1) - CO (32.0 TPY_365 Day Rolling Average
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM001
Monitor ID: CM003
Limit Description: EGU001 (CTO1) - CO (4 ppm @ 15% O2_ 1 Hr. Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/21/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM002
Monitor ID: CM003
Limit Description: EGU001 (CTO1) - CO (3.7 lb/hr_30-Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/21/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM003
Monitor ID: CM003
Limit Description: EGU001 (CTO1) - CO (56.5 lb/hr_ Hr. Average_Startup/Shutdown)
Source of Limit: CT-12636
Start Monitoring Limit: 11/21/2014
End Monitoring Limit:
Additional Information:

- **Monitor Tracking Details**
  - **Monitor Equipment Detail**

Manufacturer:	Teledyne Monitor Labs
Model Number:	T300U
Serial Number:	TBD
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	09/24/2014
Removal Date:	
Additional Information:	

- Continuous Monitor Information

Continuous Monitor ID: CM004
Monitor Details: EGU002 (CTO2) - NOx Combine Cycle Unit
Manufacturer: Teledyne Monitor Labs
Model Number: T200M
Active Limits: LIM001, LIM002, LIM003, LIM004, LIM005
Associated Object(s): EGU002, VER002

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM001
Monitor ID: CM004
Limit Description: EGU002 (CTO2) - NOx (3 ppm @ 15% O2_1 Hr Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM002
Monitor ID: CM004
Limit Description: EGU002 (CTO2) - NOx (4.6 lb/hr_30-Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM003
Monitor ID: CM004
Limit Description: EGU002 (CTO2) - NOx (TPY_365 Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM004
Monitor ID: CM004
Limit Description: EGU002 (CTO2) - NOx (22.5 lb/hr- 1 Hr Average_Startup/Shutdown)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- **Facility CEM/COM/CMS Limit Detail**

Limit ID:	LIM005
Monitor ID:	CM004
Limit Description:	EGU002 (CT02)-NOx (0.015 lbs/mmBtu)
Source of Limit:	40CFR75
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	40CFR75 Acid Rain Regulations

- **Monitor Tracking Details**
  - **Monitor Equipment Detail**

Manufacturer:	Teledyne Monitor Labs
Model Number:	T200M
Serial Number:	289
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	09/10/2014
Removal Date:	
Additional Information:	

CEM/COM/CMS Monitor: CM005

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- Continuous Monitor Information

Continuous Monitor ID:	CM005
Monitor Details:	EGU002 (CTO2) - O2 Combine Cycle Unit
Manufacturer:	Teledyne Monitor Labs
Model Number:	T200MO2
Active Limits:	LIM001
Associated Object(s):	EGU002, VER002

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID:	LIM001
Monitor ID:	CM005
Limit Description:	EGU002 (CTO2) - O2 (Diluent Only)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

- Monitor Tracking Details

- Monitor Equipment Detail

Manufacturer:	Teledyne Monitor Labs
Model Number:	T200MO2
Serial Number:	289
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	09/10/2014
Removal Date:	
Additional Information:	

- Continuous Monitor Information

Continuous Monitor ID: CM006
Monitor Details: EGU002 (CTO2) - CO Combine Cycle Unit
Manufacturer: Teledyne Monitor Labs
Model Number: T300U
Active Limits: LIM001, LIM002, LIM003, LIM004
Associated Object(s): EGU002, VER002

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM001
Monitor ID: CM006
Limit Description: EGU002 (CTO2) - CO (4 ppm @ 15% O2)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM002
Monitor ID: CM006
Limit Description: EGU002 (CTO2) - CO (3.7 lb/hr_30-Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM003
Monitor ID: CM006
Limit Description: EGU002 (CTO2) - CO (32.0 TPY_365 Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM004
Monitor ID: CM006
Limit Description: EGU002 (CTO2) - CO 56.5 lb/hr 1 hour Average_ Startup and Shutdown)
Source of Limit: CT-12636
Start Monitoring Limit: 11/22/2014
End Monitoring Limit:
Additional Information:

- **Monitor Tracking Details**
  - **Monitor Equipment Detail**

Manufacturer:	Teledyne Monitor Labs
Model Number:	T300U
Serial Number:	996
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	09/10/2014
Removal Date:	
Additional Information:	

- Continuous Monitor Information

Continuous Monitor ID: CM007
Monitor Details: EGU003 (CTO3) - NOx Simple Cycle Unit
Manufacturer: Teledyne Monitor Labs
Model Number: T200M
Active Limits: LIM001, LIM002, LIM004, LIM005, LIM003
Associated Object(s): EGU003, VER003

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM001
Monitor ID: CM007
Limit Description: EGU003 (CTO3) - NOx (5 ppm @ 15% O2_1 Hr. Average)
Source of Limit: CT-12636
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM002
Monitor ID: CM007
Limit Description: EGU003 (CTO3) - NOx (7.7 lb/hr._30 Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM004
Monitor ID: CM007
Limit Description: EGU003 (CTO3) - NOx (22.9 lb/hr._1 Hr. Average Startup and Shutdown)
Source of Limit: CT-12636
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM005
Monitor ID: CM007
Limit Description: EGU003 (CT03)-NOx (0.015 lbs/mmBtu)
Source of Limit: 40CFR75
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information: 40CFR75 Acid Rain Requlation

- **Facility CEM/COM/CMS Limit Detail**

Limit ID:	LIM003
Monitor ID:	CM007
Limit Description:	EGU003 (CTO3) - NOx (36.0 TPY_365 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/15/2015
End Monitoring Limit:	
Additional Information:	

- **Monitor Tracking Details**
  - **Monitor Equipment Detail**

Manufacturer:	Teledyne Monitor Labs
Model Number:	T200M
Serial Number:	300
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	08/15/2014
Removal Date:	
Additional Information:	

CEM/COM/CMS Monitor: CM008

- Continuous Monitor Information

Continuous Monitor ID:	CM008
Monitor Details:	EGU003 (CTO3) - O2 Combine Cycle Unit
Manufacturer:	Teledyne Monitor Labs
Model Number:	T200MO2
Active Limits:	LIM001
Associated Object(s):	EGU003, VER003

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID:	LIM001
Monitor ID:	CM008
Limit Description:	EGU003 (CTO3) - O2 (Diluent Only)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

- Monitor Tracking Details

- Monitor Equipment Detail

Manufacturer:	Teledyne Monitor Labs
Model Number:	T200MO2
Serial Number:	300
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	08/15/2014
Removal Date:	
Additional Information:	

- Continuous Monitor Information

Continuous Monitor ID: CM009
Monitor Details: EGU003 (CTO3) - CO Combine Cycle Unit
Manufacturer: Teledyne Monitor Labs
Model Number: T300U
Active Limits: LIM001, LIM002, LIM003, LIM004
Associated Object(s): EGU003, VER003

- Limits Measured by the Monitor

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM001
Monitor ID: CM009
Limit Description: EGU003 (CTO3) - CO (6 ppm@ 15% O2_ 1 hour Average)
Source of Limit: CT-12636
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM002
Monitor ID: CM009
Limit Description: EGU003 (CTO3) - CO (5.6 lb/Hr._ 30 Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM003
Monitor ID: CM009
Limit Description: EGU003 (CTO3) - CO (32.9 TPY _ 365 Day Rolling Average)
Source of Limit: CT-12636
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information:

- Facility CEM/COM/CMS Limit Detail

Limit ID: LIM004
Monitor ID: CM009
Limit Description: EGU003 (CTO3) - CO (61.6 lb/Hr._1 Hour average- Startup and Shutdown)
Source of Limit: CT-12636
Start Monitoring Limit: 01/21/2015
End Monitoring Limit:
Additional Information:

- **Monitor Tracking Details**
  - **Monitor Equipment Detail**

Manufacturer:	Teledyne Monitor Labs
Model Number:	T300U
Serial Number:	1001
QA/QC Submitted Date:	04/06/2020
QA/QC Accepted Date:	09/11/2020
Install Date:	08/15/2014
Removal Date:	
Additional Information:	

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM007
Limit Description:	EGU003 (CTO3) - NOx (5 ppm @ 15% O2_1 Hr. Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM002

- CEM/COM/CMS Limit Information

Limit ID:	LIM002
Monitor ID:	CM007
Limit Description:	EGU003 (CTO3) - NOx (7.7 lb/hr._30 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM004

- CEM/COM/CMS Limit Information

Limit ID:	LIM004
Monitor ID:	CM007
Limit Description:	EGU003 (CTO3) - NOx (22.9 lb/hr._1 Hr. Average Startup and Shutdown)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM005

- CEM/COM/CMS Limit Information

Limit ID:	LIM005
Monitor ID:	CM007
Limit Description:	EGU003 (CT03)-NOx (0.015 lbs/mmBtu)
Source of Limit:	40CFR75
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	40CFR75 Acid Rain Requlation

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM008
Limit Description:	EGU003 (CTO3) - O2 (Diluent Only)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM009
Limit Description:	EGU003 (CTO3) - CO (6 ppm@ 15% O2_ 1 hour Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM002

- CEM/COM/CMS Limit Information

Limit ID:	LIM002
Monitor ID:	CM009
Limit Description:	EGU003 (CTO3) - CO (5.6 lb/Hr._ 30 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM003

- CEM/COM/CMS Limit Information

Limit ID:	LIM003
Monitor ID:	CM009
Limit Description:	EGU003 (CTO3) - CO (32.9 TPY _ 365 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM004

- CEM/COM/CMS Limit Information

Limit ID:	LIM004
Monitor ID:	CM009
Limit Description:	EGU003 (CTO3) - CO (61.6 lb/Hr._1 Hour average- Startup and Shutdown)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/21/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM003

- CEM/COM/CMS Limit Information

Limit ID:	LIM003
Monitor ID:	CM007
Limit Description:	EGU003 (CTO3) - NOx (36.0 TPY_365 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	01/15/2015
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM004

- CEM/COM/CMS Limit Information

Limit ID:	LIM004
Monitor ID:	CM003
Limit Description:	EGU001 (CTO1) - CO (32.0 TPY_365 Day Rolling Average
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM004
Limit Description:	EGU002 (CTO2) - NOx (3 ppm @ 15% O2_1 Hr Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM002

- CEM/COM/CMS Limit Information

Limit ID:	LIM002
Monitor ID:	CM004
Limit Description:	EGU002 (CTO2) - NOx (4.6 lb/hr_30-Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM003

- CEM/COM/CMS Limit Information

Limit ID:	LIM003
Monitor ID:	CM004
Limit Description:	EGU002 (CTO2) - NOx (TPY_365 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM004

- CEM/COM/CMS Limit Information

Limit ID:	LIM004
Monitor ID:	CM004
Limit Description:	EGU002 (CTO2) - NOx (22.5 lb/hr- 1 Hr Average_Startup/Shutdown)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM005

- CEM/COM/CMS Limit Information

Limit ID:	LIM005
Monitor ID:	CM004
Limit Description:	EGU002 (CT02)-NOx (0.015 lbs/mmBtu)
Source of Limit:	40CFR75
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	40CFR75 Acid Rain Regulations

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM005
Limit Description:	EGU002 (CTO2) - O2 (Diluent Only)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM006
Limit Description:	EGU002 (CTO2) - CO (4 ppm @ 15% O2)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM002

- CEM/COM/CMS Limit Information

Limit ID:	LIM002
Monitor ID:	CM006
Limit Description:	EGU002 (CTO2) - CO (3.7 lb/hr_30-Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM003

- CEM/COM/CMS Limit Information

Limit ID:	LIM003
Monitor ID:	CM006
Limit Description:	EGU002 (CTO2) - CO (32.0 TPY_365 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM004

- CEM/COM/CMS Limit Information

Limit ID:	LIM004
Monitor ID:	CM006
Limit Description:	EGU002 (CTO2) - CO 56.5 lb/hr 1 hour Average_ Startup and Shutdown)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/22/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM003
Limit Description:	EGU001 (CTO1) - CO (4 ppm @ 15% O2_ 1 Hr. Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM002

- CEM/COM/CMS Limit Information

Limit ID:	LIM002
Monitor ID:	CM003
Limit Description:	EGU001 (CTO1) - CO (3.7 lb/hr_30-Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM003

- CEM/COM/CMS Limit Information

Limit ID:	LIM003
Monitor ID:	CM003
Limit Description:	EGU001 (CTO1) - CO (56.5 lb/hr_ Hr. Average_Startup/Shutdown)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM001
Limit Description:	EGU001 (CT01)-NOx (3ppm @ 15% O2_1 Hr. Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM002

- CEM/COM/CMS Limit Information

Limit ID:	LIM002
Monitor ID:	CM001
Limit Description:	EGU001 (CT01)-NOx (4.6 lb/hr_30-Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM003

- CEM/COM/CMS Limit Information

Limit ID:	LIM003
Monitor ID:	CM001
Limit Description:	EGU001 (CT01)-NOx (25.5 TPY_365 Day Rolling Average)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM004

- CEM/COM/CMS Limit Information

Limit ID:	LIM004
Monitor ID:	CM001
Limit Description:	EGU001 (CT01)-NOx (22.5 lb/hr _Startup /Shut Down
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

CEM/COM/CMS Limit: LIM005

- CEM/COM/CMS Limit Information

Limit ID:	LIM005
Monitor ID:	CM001
Limit Description:	EGU001 (CT01)-NOx (0.015 lbs/mmBtu)
Source of Limit:	40CFR75
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	40CFR75 Acid Rain Regulation

CEM/COM/CMS Limit: LIM001

- CEM/COM/CMS Limit Information

Limit ID:	LIM001
Monitor ID:	CM002
Limit Description:	EGU001 (CTO1) - O2 Combine Cycle Unit (Diluent Only)
Source of Limit:	CT-12636
Start Monitoring Limit:	11/21/2014
End Monitoring Limit:	
Additional Information:	

NSR Application A0018248
Cheyenne Prairie Generating Station
F024912
November 20, 2025

Air Quality Division

Application for NSR Permit

- **NSR Application**

This information should be filled out for each New Source Review (NSR) application. An NSR permit is required for all air contaminant sources (emissions units) installed or modified after January 1, 1974. See the application instructions for additional information.

- **Purpose of Application**

Please summarize the reason this permit is being applied for.

Black Hills is submitting this permit application for an expansion of the Cheyenne Prairie Generating Station (CPGS) to meet the anticipated demands for the Cheyenne area, that involves the addition of three GE LM6000 PF simple cycle natural gas turbines, three inlet air heaters, twenty-four Wartsila 18V50SG (natural gas) RICE, one emergency fire pump RICE, and supporting auxiliary systems at the CPGS facility.

Has the facility changed location or is it a new/greenfield facility?	No
Does production at this facility contain H2S?	No
Is the facility located in a Sage Grouse Zone or Mule Deer Corridor?	No

- **State Rule Applicability - Application Subject to**

Prevention of Significant Deterioration (PSD) *These rules are found under WAQSR Chapter 6, Section 4.*	Subject to Regulation
Non-Attainment New Source Review *These rules are found under WAQSR Chapter 6, Section 13.*	Not affected

- **Trade Secret Information** - One or more Emissions Units in this application contains trade secret information.

No

- **Permit Application Contact**

Cole Anderson	Environmental Manager	Cheyenne Light Fuel and Power Company
Name	Title	Company
7001 Mount Rushmore Road	Rapid City, SD	57702
Street Address	City/Township, State	Zip Code
	(605)399-5228	
International Number	Phone	Fax
Cole.Anderson@blackhillscorp.com		
E-mail	Secondary E-mail	

- **Modeling Section**

Ambient Air Quality Impact Analysis: WAQSR Chapter 6, Section 2(c)(ii) requires that permit applicants demonstrate that a proposed facility will not prevent the attainment or maintenance of any ambient air quality standard.

Has the applicant contacted AQD to determine if modeling is required?	Yes
Is a modeling analysis part of this application?	Yes
Is the proposed project subject to Prevention of Significant Deterioration (PSD) requirements?	Yes
Has the Division been notified to schedule a pre-application meeting?	Yes
Has a modeling protocol been submitted to and approved by the Division?	Yes
Has the Division received a Q/D analysis to submit to the respective FLMs to determine the need for an AQRV analysis?	Yes

- **Emissions Reduction Credits**

- **Application Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		Process Flow Diagram	
x		Emissions Calculations	
x		Cover Letter/Project Description	
x		Modeling Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU008
AQD EU description:
Company EU ID: 2CTG-TRB-2
Company EU Description: Simple Cycle Combustion Turbine 2CTG-TRB-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

  Emission Unit Type : Electric Generating Unit
  Btu Content : 1,038.00 Units : Btu/scf
  Fuel Sulfur Content : 9.00 Units : ppm
  Net Electrical Output (MW) : 40 Gross Electrical Output (MW) : 41
  Turbine Cycle Type : Simple Cycle

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

  Hours/day : 24
  Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		4	17.52	Manufacturer Data
PM # 10 microns in	0	0		4	17.52	Manufactur

diameter (PE/PM10)						er Data
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		4	17.52	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.48	2.1	Manufacturer Data
Nitrogen oxides (NOx)	100.75	3	ppm	4.6	22.91	Manufacturer Data
Carbon monoxide (CO)	285.8	6	ppm	5.6	32.95	Manufacturer Data
Volatile organic compounds (VOC)	36.9	3	ppm	3	14.01	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0.06	0.261	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.051	0.000032	lb/MMBtu	0.006	0.026	AP-42
Butadiene, 1,3-	VOC-HAP	0.001	0.00000043	lb/MMBtu	0.0000786	0.000344	AP-42
Acrolein	VOC-HAP	0.01	0.0000064	lb/MMBtu	0.001	0.005	AP-42
Toluene	VOC-HAP	0.208	0.00013	lb/MMBtu	0.024	0.104	AP-42
PAH, Total	HAP	0.004	0.0000022	lb/MMBtu	0.000402	0.002	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.102	0.000064	lb/MMBtu	0.012	0.051	AP-42
Formaldehyde	VOC-HAP	0.032	0.00002	lb/MMBtu	0.004	0.016	AP-42
Benzene	VOC-HAP	0.001	0.00000091	lb/MMBtu	0.000166	0.001	AP-42
Acetaldehyde	VOC-HAP	0.064	0.00004	lb/MMBtu	0.007	0.032	AP-42
Propylene Oxide	VOC-HAP	0.046	0.000029	lb/MMBtu	0.005	0.023	AP-42
Naphthalene	VOC-HAP	0.002	0.0000013	lb/MMBtu	0.000238	0.001	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.80583	3.52952	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	42,757.2	187,276	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	42,801.1	187,469	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.08058	0.35295	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?

Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (6.0 ppmvd @ 15% O2)
NOx - Nitrogen Oxides	Dry low emission burners with selective catalytic reduction (5.0 ppmvd @ 15% O2)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (4.0 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (4.0 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (3.0 ppmvd @ 15% O2)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
KKKK - Stationary Combustion Turbines

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
YYYY - Stationary Combustion Turbines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU009
AQD EU description:
Company EU ID: 3CTG-TRB-1
Company EU Description: Simple Cycle Combustion Turbine 3CTG-TRB-1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

  Emission Unit Type : Electric Generating Unit
  Btu Content : 1,038.00 Units : Btu/scf
  Fuel Sulfur Content : 9.00 Units : ppm
  Net Electrical Output (MW) : 40 Gross Electrical Output (MW) : 41
  Turbine Cycle Type : Simple Cycle

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

  Hours/day : 24
  Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		4	17.52	Manufacturer Data
PM # 10 microns in	0	0		4	17.52	Manufactur

diameter (PE/PM10)						er Data
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		4	17.52	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.48	2.1	Manufacturer Data
Nitrogen oxides (NOx)	100.75	3	ppm	4.6	22.91	Manufacturer Data
Carbon monoxide (CO)	285.8	6	ppm	5.6	32.95	Manufacturer Data
Volatile organic compounds (VOC)	36.9	3	ppm	3	14.01	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0.06	0.261	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.051	0.000032	lb/MMBtu	0.006	0.026	AP-42
Butadiene, 1,3-	VOC-HAP	0.001	0.00000043	lb/MMBtu	0.0000786	0.000344	AP-42
Acrolein	VOC-HAP	0.01	0.0000064	lb/MMBtu	0.001	0.005	AP-42
Toluene	VOC-HAP	0.208	0.00013	lb/MMBtu	0.024	0.104	AP-42
PAH, Total	HAP	0.004	0.0000022	lb/MMBtu	0.000402	0.002	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.102	0.000064	lb/MMBtu	0.012	0.051	AP-42
Formaldehyde	VOC-HAP	0.032	0.00002	lb/MMBtu	0.004	0.016	AP-42
Benzene	VOC-HAP	0.001	0.00000091	lb/MMBtu	0.000166	0.001	AP-42
Acetaldehyde	VOC-HAP	0.064	0.00004	lb/MMBtu	0.007	0.032	AP-42
Propylene Oxide	VOC-HAP	0.046	0.000029	lb/MMBtu	0.005	0.023	AP-42
Naphthalene	VOC-HAP	0.002	0.0000013	lb/MMBtu	0.000238	0.001	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.80583	3.52952	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	42,757.2	187,276	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	42,801.1	187,469	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.08058	0.35295	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?

Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (6.0 ppmvd @ 15% O2)
NOx - Nitrogen Oxides	Dry low emission burners with selective catalytic reduction (5.0 ppmvd @ 15% O2)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (4.0 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (4.0 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (3.0 ppmvd @ 15% O2)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
KKKK - Stationary Combustion Turbines

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
YYYY - Stationary Combustion Turbines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU010
AQD EU description:
Company EU ID: 3CTG-TRB-2
Company EU Description: Simple Cycle Combustion Turbine 3CTG-TRB-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 40 Gross Electrical Output (MW) : 41
Turbine Cycle Type : Simple Cycle

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		4	17.52	Manufacturer Data
PM # 10 microns in	0	0		4	17.52	Manufactur

diameter (PE/PM10)						er Data
PM # 2.5 microns in diameter (PE/PM2.5)	0	0		4	17.52	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.48	2.1	Manufacturer Data
Nitrogen oxides (NOx)	100.75	3	ppm	4.6	22.91	Manufacturer Data
Carbon monoxide (CO)	285.8	6	ppm	5.6	32.95	Manufacturer Data
Volatile organic compounds (VOC)	36.9	3	ppm	3	14.01	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0.06	0.261	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.051	0.000032	lb/MMBtu	0.006	0.026	AP-42
Butadiene, 1,3-	VOC-HAP	0.001	0.00000043	lb/MMBtu	0.0000786	0.000344	AP-42
Acrolein	VOC-HAP	0.01	0.0000064	lb/MMBtu	0.001	0.005	AP-42
Toluene	VOC-HAP	0.208	0.00013	lb/MMBtu	0.024	0.104	AP-42
PAH, Total	HAP	0.004	0.0000022	lb/MMBtu	0.000402	0.002	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.102	0.000064	lb/MMBtu	0.012	0.051	AP-42
Formaldehyde	VOC-HAP	0.032	0.00002	lb/MMBtu	0.004	0.016	AP-42
Benzene	VOC-HAP	0.001	0.00000091	lb/MMBtu	0.000166	0.001	AP-42
Acetaldehyde	VOC-HAP	0.064	0.00004	lb/MMBtu	0.007	0.032	AP-42
Propylene Oxide	VOC-HAP	0.046	0.000029	lb/MMBtu	0.005	0.023	AP-42
Naphthalene	VOC-HAP	0.002	0.0000013	lb/MMBtu	0.000238	0.001	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.80583	3.52952	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	42,757.2	187,276	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	42,801.1	187,469	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.08058	0.35295	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.*

Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?

Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (6.0 ppmvd @ 15% O2)
NOx - Nitrogen Oxides	Dry low emission burners with selective catalytic reduction (5.0 ppmvd @ 15% O2)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (4.0 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (4.0 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (3.0 ppmvd @ 15% O2)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
KKKK - Stationary Combustion Turbines

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
YYYY - Stationary Combustion Turbines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU011
AQD EU description:
Company EU ID: 4REB-ENG-1
Company EU Description: Natural Gas Wartsila Engine 4REB-ENG-1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU012
AQD EU description:
Company EU ID: 4REB-ENG-2
Company EU Description: Natural Gas Wartsila Engine 4REB-ENG-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.5	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU013
AQD EU description:
Company EU ID: 4REB-ENG-3
Company EU Description: Natural Gas Wartsila Engine 4REB-ENG-3

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU014
AQD EU description:
Company EU ID: 4REB-ENG-4
Company EU Description: Natural Gas Wartsila Engine 4REB-ENG-4

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU015
AQD EU description:
Company EU ID: 4REB-ENG-5
Company EU Description: Natural Gas Wartsila Engine 4REB-ENG-5

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU016
AQD EU description:
Company EU ID: 4REB-ENG-6
Company EU Description: Natural Gas Wartsila Engine 4REB-ENG-6

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU017
AQD EU description:
Company EU ID: 5REB-ENG-1
Company EU Description: Natural Gas Wartsila Engine 5REB-ENG-1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU018
AQD EU description:
Company EU ID: 5REB-ENG-2
Company EU Description: Natural Gas Wartsila Engine 5REB-ENG-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU019
AQD EU description:
Company EU ID: 5REB-ENG-3
Company EU Description: Natural Gas Wartsila Engine 5REB-ENG-3

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU020
AQD EU description:
Company EU ID: 5REB-ENG-4
Company EU Description: Natural Gas Wartsila Engine 5REB-ENG-4

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU021
AQD EU description:
Company EU ID: 5REB-ENG-5
Company EU Description: Natural Gas Wartsila Engine 5REB-ENG-5

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU022
AQD EU description:
Company EU ID: 5REB-ENG-6
Company EU Description: Natural Gas Wartsila Engine 5REB-ENG-6

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU023
AQD EU description:
Company EU ID: 6REB-ENG-1
Company EU Description: Natural Gas Wartsila Engine 6REB-ENG-1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU024
AQD EU description:
Company EU ID: 6REB-ENG-2
Company EU Description: Natural Gas Wartsila Engine 6REB-ENG-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU025
AQD EU description:
Company EU ID: 6REB-ENG-3
Company EU Description: Natural Gas Wartsila Engine 6REB-ENG-3

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU026
AQD EU description:
Company EU ID: 6REB-ENG-4
Company EU Description: Natural Gas Wartsila Engine 6REB-ENG-4

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU027
AQD EU description:
Company EU ID: 6REB-ENG-5
Company EU Description: Natural Gas Wartsila Engine 6REB-ENG-5

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU028
AQD EU description:
Company EU ID: 6REB-ENG-6
Company EU Description: Natural Gas Wartsila Engine 6REB-ENG-6

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU029
AQD EU description:
Company EU ID: 7REB-ENG-1
Company EU Description: Natural Gas Wartsila Engine 7REB-ENG-1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU030
AQD EU description:
Company EU ID: 7REB-ENG-2
Company EU Description: Natural Gas Wartsila Engine 7REB-ENG-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU031
AQD EU description:
Company EU ID: 7REB-ENG-3
Company EU Description: Natural Gas Wartsila Engine 7REB-ENG-3

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU032
AQD EU description:
Company EU ID: 7REB-ENG-4
Company EU Description: Natural Gas Wartsila Engine 7REB-ENG-4

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU033
AQD EU description:
Company EU ID: 7REB-ENG-5
Company EU Description: Natural Gas Wartsila Engine 7REB-ENG-5

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: EGU034
AQD EU description:
Company EU ID: 7REB-ENG-6
Company EU Description: Natural Gas Wartsila Engine 7REB-ENG-6

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Electric Generating Unit
Btu Content : 1,038.00 Units : Btu/scf
Fuel Sulfur Content : 9.00 Units : ppm
Net Electrical Output (MW) : 17 Gross Electrical Output (MW) : 18

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day : 24
Hours/year : 8760

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0		3.6	16.5	Manufacturer Data
PM # 10 microns in diameter (PE/PM10)	0	0		3.6	16.5	Manufacturer Data

PM # 2.5 microns in diameter (PE/PM2.5)	0	0		3.6	16.5	Manufacturer Data
Sulfur dioxide (SO2)	0	0		0.08	0.37	AP-42
Nitrogen oxides (NOx)	169.5	0.04	gr/hp-hr	2	12.5	Manufacturer Data
Carbon monoxide (CO)	257.8	0.11	gr/hp-hr	6.1	30.29	Manufacturer Data
Volatile organic compounds (VOC)	97.9	0.15	gr/hp-hr	8.1	35.46	Manufacturer Data
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	20.5	0		0.47	2.05	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Ethyl Benzene	VOC-HAP	0.0249	0.00000397	lb/MMBtu	0.000569	0.00249	AP-42
Styrene	VOC-HAP	0.0148	0.00000236	lb/MMBtu	0.000338	0.00148	AP-42
Ethylene Dibromide (Dibromoethane)	VOC-HAP	0.0278	0.00000443	lb/MMBtu	0.000634	0.00278	AP-42
Butadiene, 1,3-	VOC-HAP	0.17	0.0000267	lb/MMBtu	0.00382	0.02	AP-42
Acrolein	VOC-HAP	3.22	0.000514	lb/MMBtu	0.07	0.32	AP-42
Toluene	VOC-HAP	0.26	0.0000408	lb/MMBtu	0.01	0.03	AP-42
Chlorobenzene	VOC-HAP	0.0191	0.00000304	lb/MMBtu	0.000435	0.00191	AP-42
Phenol	VOC-HAP	0.0151	0.0000024	lb/MMBtu	0.000344	0.00151	AP-42
Hexane, N-	VOC-HAP	0.7	0.000111	lb/MMBtu	0.02	0.07	AP-42
Tetrachloroethylene (Perchloroethylene)	HAP	0.00156	0.00000025	lb/MMBtu	0.0000355	0.000156	AP-42
Pyrene	HAP	0.000853	0.00000014	lb/MMBtu	0.0000195	0.0000853	AP-42
PAH, Total	HAP	0.0169	0.00000269	lb/MMBtu	0.000385	0.00169	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0.12	0.0000184	lb/MMBtu	0.00263	0.01	AP-42
Benzo[G,H,I,]Perylene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000593	0.000026	AP-42
Benzo[B]Fluoranthene	HAP	0.000104	0.00000002	lb/MMBtu	0.00000238	0.0000104	AP-42
Fluoranthene	HAP	0.000696	0.00000011	lb/MMBtu	0.0000159	0.0000696	AP-42
Acenaphthylene	HAP	0.00347	0.00000055	lb/MMBtu	0.0000792	0.000347	AP-42

Chrysene	HAP	0.000435	0.00000007	lb/MMBtu	0.00000992	0.0000435	AP-42
Formaldehyde	VOC-HAP	16.64	0.00133	lb/MMBtu	0.19	0.83	Manufacturer Data
Benzo[A]Pyrene	HAP	0.00026	0.00000004	lb/MMBtu	0.00000594	0.000026	AP-42
Trimethylpentane, 2,2,4- (Isooctane)	HAP	0.16	0.000025	lb/MMBtu	0.00358	0.02	AP-42
Dichloropropene, 1,3- (Technical Grade)	HAP	0.0166	0.00000264	lb/MMBtu	0.000378	0.00166	AP-42
Carbon Tetrachloride	HAP	0.023	0.00000367	lb/MMBtu	0.000526	0.0023	AP-42
Methanol	VOC-HAP	1.57	0.00025	lb/MMBtu	0.04	0.16	AP-42
Chloroform	VOC-HAP	0.0179	0.00000285	lb/MMBtu	0.000408	0.00179	AP-42
Benzene	VOC-HAP	0.28	0.000044	lb/MMBtu	0.01	0.03	AP-42
Vinyl Chloride	VOC-HAP	0.00935	0.00000149	lb/MMBtu	0.000213	0.000935	AP-42
Acetaldehyde	VOC-HAP	5.24	0.000836	lb/MMBtu	0.12	0.52	AP-42
Methylene Chloride (Dichloromethane)	HAP	0.0125	0.000002	lb/MMBtu	0.000286	0.00125	AP-42
Trichloroethane, 1,1,2-	VOC-HAP	0.0199	0.00000318	lb/MMBtu	0.000455	0.00199	AP-42
Tetrachloroethane, 1,1,2,2-	HAP	0.0251	0.000004	lb/MMBtu	0.000573	0.00251	AP-42
Acenaphthene	HAP	0.000784	0.00000012	lb/MMBtu	0.0000179	0.0000784	AP-42
Phenanthrene	HAP	0.00652	0.00000104	lb/MMBtu	0.000149	0.000652	AP-42
Fluorene	HAP	0.00356	0.00000057	lb/MMBtu	0.0000812	0.000356	AP-42
Naphthalene	VOC-HAP	0.0467	0.00000744	lb/MMBtu	0.00107	0.00467	AP-42
Methylnaphthalene, 2-	HAP	0.0208	0.00000332	lb/MMBtu	0.000475	0.00208	AP-42
Biphenyl	VOC-HAP	0.13	0.0000212	lb/MMBtu	0.00304	0.01	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.316	1.30384	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	16,750.974	69,181.54	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	16,768.18	69,252.6	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.0316	0.13038	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?
Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustor design with Catalytic Oxidation (0.11 g/hp-hr)
NOx - Nitrogen Oxides	Selective catalytic reduction (0.04 g/hp-hr)
PM10 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
PM2.5 Primary (includes filterables + condensibles)	Natural gas and good combustor design (3.6 lb/hr total particulate with 3-hour averaging time)
SO2 - Sulfur Dioxide	Pipeline natural gas (0.5 grains of sulfur/100 scf)
VOC - Volatile Organic Compounds	Good combustor design with Catalytic Oxidation (8.1 lb/hr)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
JJJJ - Stationary Spark Ignition Internal Combustion Engine

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: ENG004
AQD EU description:
Company EU ID: FP-ENG-2
Company EU Description: 400 HP Diesel Emergency Fire Pump

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

Emission Unit Type : Engine
Btu Content : 138,000.00 Units : Btu/gallon
Fuel Sulfur Content : 15.00 Units : ppm
Type of Service : Emergency
Is diesel engine EPA Tier Certified? : Yes
Tier Rating : Tier 3

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

Hours/day :
Hours/year : 500

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:

  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0.15	gr/hp-hr	0.13	0.03	Other

PM # 10 microns in diameter (PE/PM10)	0	0.15	gr/hp-hr	0.13	0.03	Other
PM # 2.5 microns in diameter (PE/PM2.5)	0	0.15	gr/hp-hr	0.13	0.03	Other
Sulfur dioxide (SO2)	0	0.930495	gr/hp-hr	0.82	0.21	AP-42
Nitrogen oxides (NOx)	0	3	gr/hp-hr	2.5	0.62	Other
Carbon monoxide (CO)	0	2.6	gr/hp-hr	2.3	0.58	Other
Volatile organic compounds (VOC)	0	0.15	gr/hp-hr	0.13	0.03	Other
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0.106	0.00264	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Butadiene, 1,3-	VOC-HAP	0	0.0000391	lb/MMBtu	0.000109	0.0000273	AP-42
Acrolein	VOC-HAP	0	0.0000925	lb/MMBtu	0.000258	0.0000645	AP-42
Toluene	VOC-HAP	0	0.000409	lb/MMBtu	0.00114	0.000285	AP-42
Propylene	Other	0	0.00258	lb/MMBtu	0.0072	0.0018	AP-42
Anthracene	HAP	0	0.00000187	lb/MMBtu	0.00000522	0.0000013	AP-42
Pyrene	HAP	0	0.00000478	lb/MMBtu	0.0000133	0.00000333	AP-42
Xylenes (Isomers and Mixture)	VOC-HAP	0	0.000285	lb/MMBtu	0.000795	0.000199	AP-42
Indeno[1,2,3-C,D]Pyrene	HAP	0	0.00000038	lb/MMBtu	0.00000105	0.00000026	AP-42
Benzo(G,H,I)Fluoranthene	HAP	0	0.00000049	lb/MMBtu	0.00000136	0.00000034	AP-42
Benzo[B]Fluoranthene	HAP	0	0.0000001	lb/MMBtu	0.00000028	0.00000007	AP-42
Fluoranthene	HAP	0	0.00000761	lb/MMBtu	0.0000212	0.00000531	AP-42
Benzo[K]Fluoranthene	HAP	0	0.00000016	lb/MMBtu	0.00000043	0.00000011	AP-42
Acenaphthylene	HAP	0	0.00000506	lb/MMBtu	0.0000141	0.00000353	AP-42
Chrysene	HAP	0	0.00000035	lb/MMBtu	0.00000098	0.00000025	AP-42
Formaldehyde	VOC-HAP	0	0.00118	lb/MMBtu	0.00329	0.000823	AP-42
Benzo[A]Pyrene	HAP	0	0.00000019	lb/MMBtu	0.00000052	0.00000013	AP-42
Dibenzo[A,H]Anthracene	HAP	0	0.00000058	lb/MMBtu	0.00000163	0.00000041	AP-42

Benz[A]Anthracene	HAP	0	0.00000168	lb/MMBtu	0.00000469	0.00000117	AP-42
Benzene	VOC-HAP	0	0.000933	lb/MMBtu	0.0026	0.000615	AP-42
Acetaldehyde	VOC-HAP	0	0.000767	lb/MMBtu	0.00214	0.000535	AP-42
Acenaphthene	HAP	0	0.00000142	lb/MMBtu	0.00000396	0.00000099	AP-42
Phenanthrene	HAP	0	0.0000294	lb/MMBtu	0.000082	0.0000205	AP-42
Fluorene	HAP	0	0.0000292	lb/MMBtu	0.0000814	0.0000204	AP-42
Naphthalene	VOC-HAP	0	0.0000848	lb/MMBtu	0.000236	0.0000591	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.006614	lb/MMBtu	0.01844	0.00461	Other
Carbon Dioxide	GHG	0	163.0537	lb/MMBtu	454.72	113.68	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	456.24	114.06	Other
Nitrous Oxide	GHG	0	0.001323	lb/MMBtu	0.003688	0.000922	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?

Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Engine design and Tier 3 certification (3.5 g/kW-hr)
NOx - Nitrogen Oxides	Engine design and Tier 3 certification (4.0 g/kW-hr NOx + NMHC)
PM10 Filterable Portion Only	Tier 3 engine and good combustion practices (0.20 g/kW-hr)
PM2.5 Filterable Portion Only	Tier 3 engine and good combustion practices (0.20 g/kW-hr)
SO2 - Sulfur Dioxide	Low sulfur fuel and good combustion practices
VOC - Volatile Organic Compounds	Engine design and Tier 3 certification (4.0 g/kW-hr NOx + NMHC)

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS)
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

Subject to subpart

NSPS Subpart
IIII - Stationary Compression Ignition Internal Combustion Engines

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61)
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Not affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63)
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Subject to subpart

Part 63 NESHAP Subpart
ZZZZ - Reciprocating Internal Combustion Engines

Prevention of Significant Deterioration (PSD)
These rules are found under WAQSR Chapter 6, Section 4.

Affected

Non-Attainment New Source Review
These rules are found under WAQSR Chapter 6, Section 13.

Not Affected

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
X		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: HET009
AQD EU description:
Company EU ID: 2CTG-IAH-2
Company EU Description: Inlet Air Heater 2CTG-IAH-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

  Emission Unit Type : Heater/Chiller
  Fuel Sulfur Content : 9.00 Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

  Hours/day :
  Hours/year : 4380

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
PM # 2.5 microns in diameter (PE/PM2.5)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
Sulfur dioxide (SO2)	0	0.00059	lb/MMBtu	0.01	0.02	AP-42
Nitrogen oxides (NOx)	0	9	ppm	0.19	0.42	Manufactur

						er Data
Carbon monoxide (CO)	0	50	ppm	0.59	1.3	Other
Volatile organic compounds (VOC)	0	0.00539	lb/MMBtu	0.09	0.19	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0.0297	0.0651	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Toluene	VOC-HAP	0	0.00000333	lb/MMBtu	0.0000536	0.000117	AP-42
Hexane, N-	VOC-HAP	0	0.00176	lb/MMBtu	0.0284	0.0621	AP-42
Anthracene	HAP	0	0	lb/MMBtu	0.00000004	0.00000008	AP-42
Pyrene	HAP	0	0	lb/MMBtu	0.00000008	0.00000017	AP-42
Benzo[G,H,I,]Perylene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Indeno[1,2,3-C,D]Pyrene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Manganese & Compounds	PM-HAP	0	0.00000037	lb/MMBtu	0.0000059	0.0000131	AP-42
Benzo(A)Fluoranthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Fluoranthene	HAP	0	0	lb/MMBtu	0.00000005	0.0000001	AP-42
Benzo[K]Fluoranthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Acenaphthylene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Chrysene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Dichlorobenzene, mixed isomers	Other	0	0.00000118	lb/MMBtu	0.0000189	0.0000414	AP-42
Formaldehyde	VOC-HAP	0	0.0000735	lb/MMBtu	0.00118	0.00259	AP-42
Benzo[A]Pyrene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Dibenzo[A,H]Anthracene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Methylcholanthrene, 3-	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Benz[A]Anthracene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42

Dimethylbenz[A]Anthracene, 7,12-	HAP	0	0.00000002	lb/MMBtu	0.00000025	0.00000055	AP-42
Benzene	VOC-HAP	0	0.00000206	lb/MMBtu	0.0000331	0.0000724	AP-42
Mercury	HAP	0	0.00000026	lb/MMBtu	0.0000041	0.00000897	AP-42
Nickel	PM-HAP	0	0.00000206	lb/MMBtu	0.0000331	0.0000724	AP-42
Arsenic	PM-HAP	0	0.0000002	lb/MMBtu	0.00000315	0.0000069	AP-42
Beryllium	PM-HAP	0	0.00000001	lb/MMBtu	0.00000019	0.00000041	AP-42
Cadmium	PM-HAP	0	0.00000108	lb/MMBtu	0.0000173	0.0000379	AP-42
Chromium	PM-HAP	0	0.00000137	lb/MMBtu	0.0000221	0.0000483	AP-42
Cobalt	PM-HAP	0	0.00000008	lb/MMBtu	0.00000132	0.0000029	AP-42
Selenium	PM-HAP	0	0.00000002	lb/MMBtu	0.00000038	0.00000083	AP-42
Acenaphthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Phenanthrene	HAP	0	0.00000002	lb/MMBtu	0.00000027	0.00000059	AP-42
Fluorene	HAP	0	0	lb/MMBtu	0.00000004	0.0000001	AP-42
Naphthalene	VOC-HAP	0	0.0000006	lb/MMBtu	0.00000961	0.000021	AP-42
Methylnaphthalene, 2-	HAP	0	0.00000002	lb/MMBtu	0.00000038	0.00000083	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.03542	0.07758	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	1,879.57	4,116.26	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	1,881.5	4,120.49	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.00354	0.00776	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?

Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustion design (0.08 lb/MMBtu)
NOx - Nitrogen Oxides	Low NOx burners (0.012 lb/MMBtu)
PM10 Primary (includes filterables +	Pipeline quality natural gas and good

condensibles)	combustion practices
PM2.5 Primary (includes filterables + condensibles)	Pipeline quality natural gas and good combustion practices
SO2 - Sulfur Dioxide	Pipeline quality natural gas and good combustion practices
VOC - Volatile Organic Compounds	Pipeline quality natural gas and good combustion practices

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
Dc - Small Industrial Steam Generating Units

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
DDDDD - Industrial, Commercial, and Institutional Boilers and Process Heaters

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: HET010
AQD EU description:
Company EU ID: 3CTG-IAH-1
Company EU Description: Inlet Air Heater 3CTG-IAH-1

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

  Emission Unit Type : Heater/Chiller
  Fuel Sulfur Content : 9.00 Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

  Hours/day :
  Hours/year : 4380

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
PM # 2.5 microns in diameter (PE/PM2.5)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
Sulfur dioxide (SO2)	0	0.00059	lb/MMBtu	0.01	0.02	AP-42
Nitrogen oxides (NOx)	0	9	ppm	0.19	0.42	Manufactur

						er Data
Carbon monoxide (CO)	0	50	ppm	0.59	1.3	Other
Volatile organic compounds (VOC)	0	0.00539	lb/MMBtu	0.09	0.19	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0.0297	0.0651	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Toluene	VOC-HAP	0	0.00000333	lb/MMBtu	0.0000536	0.000117	AP-42
Hexane, N-	VOC-HAP	0	0.00176	lb/MMBtu	0.0284	0.0621	AP-42
Anthracene	HAP	0	0	lb/MMBtu	0.00000004	0.00000008	AP-42
Pyrene	HAP	0	0	lb/MMBtu	0.00000008	0.00000017	AP-42
Benzo[G,H,I,]Perylene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Indeno[1,2,3-C,D]Pyrene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Manganese & Compounds	PM-HAP	0	0.00000037	lb/MMBtu	0.0000059	0.0000131	AP-42
Benzo(A)Fluoranthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Fluoranthene	HAP	0	0	lb/MMBtu	0.00000005	0.0000001	AP-42
Benzo[K]Fluoranthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Acenaphthylene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Chrysene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Dichlorobenzene, mixed isomers	Other	0	0.00000118	lb/MMBtu	0.0000189	0.0000414	AP-42
Formaldehyde	VOC-HAP	0	0.0000735	lb/MMBtu	0.00118	0.00259	AP-42
Benzo[A]Pyrene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Dibenzo[A,H]Anthracene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Methylcholanthrene, 3-	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Benz[A]Anthracene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42

Dimethylbenz[A]Anthracene, 7,12-	HAP	0	0.00000002	lb/MMBtu	0.00000025	0.00000055	AP-42
Benzene	VOC-HAP	0	0.00000206	lb/MMBtu	0.0000331	0.0000724	AP-42
Mercury	HAP	0	0.00000026	lb/MMBtu	0.0000041	0.00000897	AP-42
Nickel	PM-HAP	0	0.00000206	lb/MMBtu	0.0000331	0.0000724	AP-42
Arsenic	PM-HAP	0	0.0000002	lb/MMBtu	0.00000315	0.0000069	AP-42
Beryllium	PM-HAP	0	0.00000001	lb/MMBtu	0.00000019	0.00000041	AP-42
Cadmium	PM-HAP	0	0.00000108	lb/MMBtu	0.0000173	0.0000379	AP-42
Chromium	PM-HAP	0	0.00000137	lb/MMBtu	0.0000221	0.0000483	AP-42
Cobalt	PM-HAP	0	0.00000008	lb/MMBtu	0.00000132	0.0000029	AP-42
Selenium	PM-HAP	0	0.00000002	lb/MMBtu	0.00000038	0.00000083	AP-42
Acenaphthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Phenanthrene	HAP	0	0.00000002	lb/MMBtu	0.00000027	0.00000059	AP-42
Fluorene	HAP	0	0	lb/MMBtu	0.00000004	0.0000001	AP-42
Naphthalene	VOC-HAP	0	0.0000006	lb/MMBtu	0.00000961	0.000021	AP-42
Methylnaphthalene, 2-	HAP	0	0.00000002	lb/MMBtu	0.00000038	0.00000083	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.03542	0.07758	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	1,879.57	4,116.26	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	1,881.5	4,120.49	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.00354	0.00776	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?

Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustion design (0.08 lb/MMBtu)
NOx - Nitrogen Oxides	Low NOx burners (0.012 lb/MMBtu)
PM10 Primary (includes filterables +	Pipeline quality natural gas and good

condensibles)	combustion practices
PM2.5 Primary (includes filterables + condensibles)	Pipeline quality natural gas and good combustion practices
SO2 - Sulfur Dioxide	Pipeline quality natural gas and good combustion practices
VOC - Volatile Organic Compounds	Pipeline quality natural gas and good combustion practices

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
Dc - Small Industrial Steam Generating Units

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
DDDDD - Industrial, Commercial, and Institutional Boilers and Process Heaters

Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Section II - Specific Air Contaminant Source Information

AQD EU ID: HET011
AQD EU description:
Company EU ID: 3CTG-IAH-2
Company EU Description: Inlet Air Heater 3CTG-IAH-2

- **Source Installation or Modification Schedule** – Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

  Modification

  When will you begin to modify the air contaminant source?

- **Emission Unit Type Specific Information**

  Emission Unit Type : Heater/Chiller
  Fuel Sulfur Content : 9.00 Units : ppm

- **Potential Operating Schedule** – Provide the operating schedule for this emissions unit

  Hours/day :
  Hours/year : 4380

- **Emissions Information** "Potential to emit" means the maximum capacity of a source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the EPA and the Division. This term does not alter or affect the use of this term for any other purposes under the Act, or the term “capacity factor” as used in Title IV of the Act or the regulations promulgated thereunder.

  Basis for Determination Options:
  - *Manufacturer Data*
  - *Test results for this source*
  - *Similar source test results*
  - *GRICalc*
  - *Tanks Program*
  - *AP-42*
  - *Other. If this is selected, attach a document with a description of the method used.*

  Criteria Pollutants :

Pollutant	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
		Potential to Emit (PTE)*	Units*			
Particulate emissions (PE/PM) (formerly particulate matter, PM)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
PM # 10 microns in diameter (PE/PM10)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
PM # 2.5 microns in diameter (PE/PM2.5)	0	0.00745	lb/MMBtu	0.12	0.26	AP-42
Sulfur dioxide (SO2)	0	0.00059	lb/MMBtu	0.01	0.02	AP-42
Nitrogen oxides (NOx)	0	9	ppm	0.19	0.42	Manufactur

						er Data
Carbon monoxide (CO)	0	50	ppm	0.59	1.3	Other
Volatile organic compounds (VOC)	0	0.00539	lb/MMBtu	0.09	0.19	AP-42
Lead (Pb)	0	0		0	0	
Total Hazardous Air Pollutants (HAPs)	0	0		0.0297	0.0651	AP-42
Fluoride (F)	0	0		0	0	
Hydrogen Sulfide (H2S)	0	0		0	0	
Mercury (Hg)	0	0		0	0	
Total Reduced Sulfur (TRS)	0	0		0	0	
Sulfuric Acid Mist (SAM)	0	0		0	0	

Hazardous Air Pollutants (HAPs) and Toxic Air Contaminants:

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Toluene	VOC-HAP	0	0.00000333	lb/MMBtu	0.0000536	0.000117	AP-42
Hexane, N-	VOC-HAP	0	0.00176	lb/MMBtu	0.0284	0.0621	AP-42
Anthracene	HAP	0	0	lb/MMBtu	0.00000004	0.00000008	AP-42
Pyrene	HAP	0	0	lb/MMBtu	0.00000008	0.00000017	AP-42
Benzo[G,H,I,]Perylene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Indeno[1,2,3-C,D]Pyrene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Manganese & Compounds	PM-HAP	0	0.00000037	lb/MMBtu	0.0000059	0.0000131	AP-42
Benzo(A)Fluoranthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Fluoranthene	HAP	0	0	lb/MMBtu	0.00000005	0.0000001	AP-42
Benzo[K]Fluoranthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Acenaphthylene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Chrysene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Dichlorobenzene, mixed isomers	Other	0	0.00000118	lb/MMBtu	0.0000189	0.0000414	AP-42
Formaldehyde	VOC-HAP	0	0.0000735	lb/MMBtu	0.00118	0.00259	AP-42
Benzo[A]Pyrene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Dibenzo[A,H]Anthracene	HAP	0	0	lb/MMBtu	0.00000002	0.00000004	AP-42
Methylcholanthrene, 3-	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Benz[A]Anthracene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42

Dimethylbenz[A]Anthracene, 7,12-	HAP	0	0.00000002	lb/MMBtu	0.00000025	0.00000055	AP-42
Benzene	VOC-HAP	0	0.00000206	lb/MMBtu	0.0000331	0.0000724	AP-42
Mercury	HAP	0	0.00000026	lb/MMBtu	0.0000041	0.00000897	AP-42
Nickel	PM-HAP	0	0.00000206	lb/MMBtu	0.0000331	0.0000724	AP-42
Arsenic	PM-HAP	0	0.0000002	lb/MMBtu	0.00000315	0.0000069	AP-42
Beryllium	PM-HAP	0	0.00000001	lb/MMBtu	0.00000019	0.00000041	AP-42
Cadmium	PM-HAP	0	0.00000108	lb/MMBtu	0.0000173	0.0000379	AP-42
Chromium	PM-HAP	0	0.00000137	lb/MMBtu	0.0000221	0.0000483	AP-42
Cobalt	PM-HAP	0	0.00000008	lb/MMBtu	0.00000132	0.0000029	AP-42
Selenium	PM-HAP	0	0.00000002	lb/MMBtu	0.00000038	0.00000083	AP-42
Acenaphthene	HAP	0	0	lb/MMBtu	0.00000003	0.00000006	AP-42
Phenanthrene	HAP	0	0.00000002	lb/MMBtu	0.00000027	0.00000059	AP-42
Fluorene	HAP	0	0	lb/MMBtu	0.00000004	0.0000001	AP-42
Naphthalene	VOC-HAP	0	0.0000006	lb/MMBtu	0.00000961	0.000021	AP-42
Methylnaphthalene, 2-	HAP	0	0.00000002	lb/MMBtu	0.00000038	0.00000083	AP-42

Greenhouse Gases (GHGs):

Pollutant	Pollutant Category	Pre-Controlled Potential Emissions (tons/yr)	Efficiency Standards		Potential to Emit (PTE) (lbs/hr)*	Potential to Emit (PTE) (tons/yr)*	Basis for Determination*
			Potential to Emit (PTE)*	Units*			
Methane	GHG	0	0.0022	lb/MMBtu	0.03542	0.07758	Other
Carbon Dioxide	GHG	0	116.976	lb/MMBtu	1,879.57	4,116.26	Other
CO2e - Carbon Dioxide Equivalent	Other	0	0	lb/MMBtu	1,881.5	4,120.49	Other
Nitrous Oxide	GHG	0	0.00022	lb/MMBtu	0.00354	0.00776	Other

** Provide your calculations as an attachment and explain how all process variables and emissions factors were selected. Note the emission factor(s) employed and document origin. Example: AP-42, Table 4.4-3 (8/97); stack test, Method 5, 4/96; mass balance based on MSDS; etc.*

*** AQD Calculated - See 'Help' for more information.*

- **Best Available Control Technology (BACT)**

Is this unit subject to PSD BACT?

Was a BACT Analysis completed for this unit? Yes

Pollutant	Proposed BACT
CO - Carbon Monoxide	Good combustion design (0.08 lb/MMBtu)
NOx - Nitrogen Oxides	Low NOx burners (0.012 lb/MMBtu)
PM10 Primary (includes filterables +	Pipeline quality natural gas and good

condensibles)	combustion practices
PM2.5 Primary (includes filterables + condensibles)	Pipeline quality natural gas and good combustion practices
SO2 - Sulfur Dioxide	Pipeline quality natural gas and good combustion practices
VOC - Volatile Organic Compounds	Pipeline quality natural gas and good combustion practices

- **Lowest Achievable Emission Rate (LAER)**

Was a LAER Analysis completed for this unit? No

- **Federal and State Rule Applicability**

New Source Performance Standards (NSPS) Subject to subpart
New Source Performance Standards are listed under 40 CFR 60 - Standards of Performance for New Stationary Sources.

NSPS Subpart
A - General Provision
Dc - Small Industrial Steam Generating Units

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61) Not affected
National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) Subject to subpart
National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63.

Part 63 NESHAP Subpart
DDDDD - Industrial, Commercial, and Institutional Boilers and Process Heaters

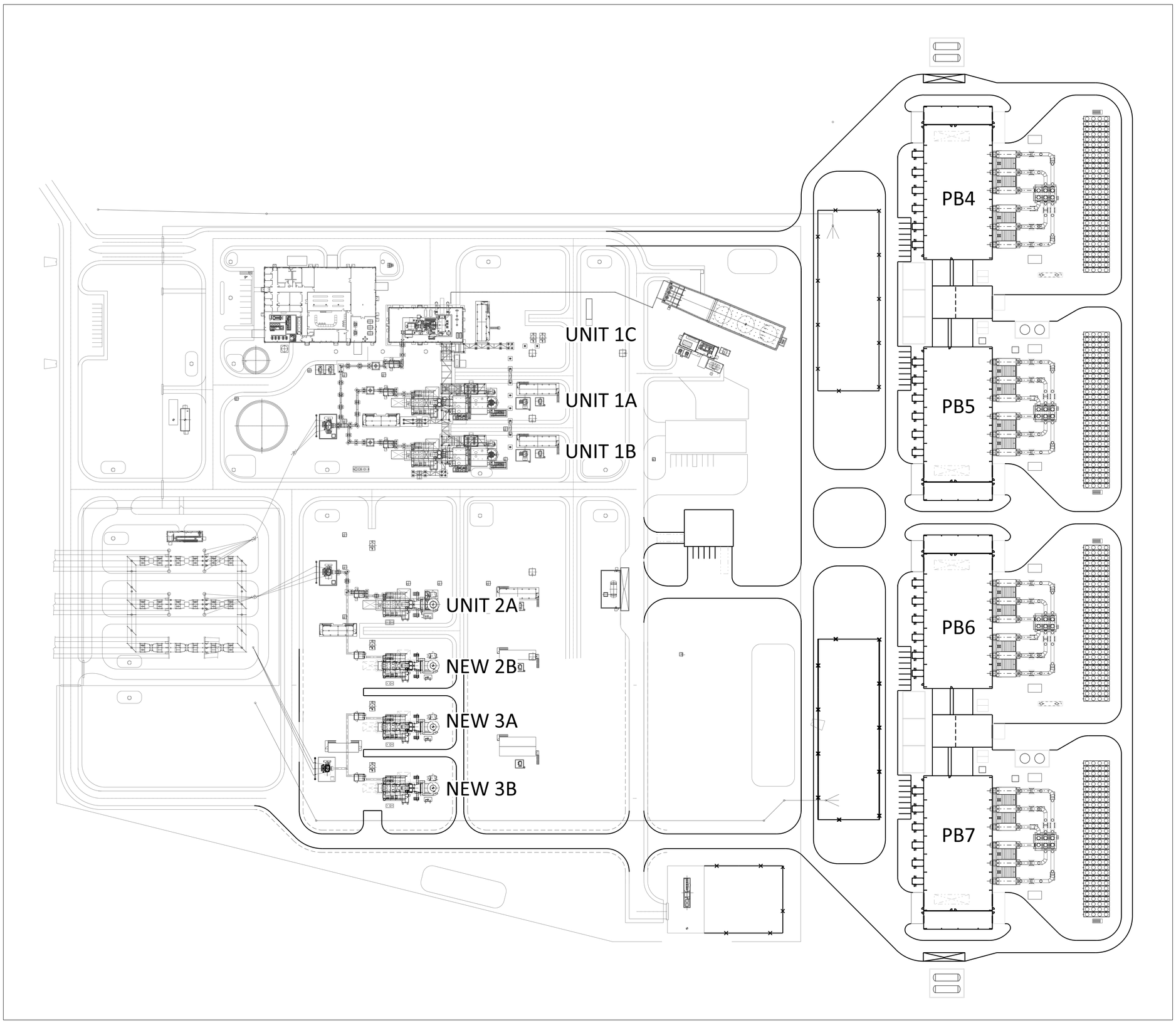
Prevention of Significant Deterioration (PSD) Affected
These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review Not Affected
These rules are found under WAQSR Chapter 6, Section 13.

- **Emission Unit Attachments**

Required Attachment	Public Document Id	Attachment Type	Description
x		BACT Analysis	

Appendix B
Location Map and Plot Plan



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Professional Engineer
ZACHARY TAYLOR
14739
Date
WYOMING

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRN	DES	CHK	PDE	APP
A	-	OWNER REVIEW	PWB			Z.N.T	

N

60' 30' 0 60' 120'
1"=60'

BLACK & VEATCH

DESIGNER	DRAWN	PROJECT	DRAWING NUMBER	REV
CHECKED	DATE	423614-0GAU-G1000		A

BLACK HILLS POWER
CHEYENNE PRAIRIE GENERATING STATION (CPGS)
PLOT PLAN

CODE
AREA

MicroStation v23.00.01.44
Full Size 1 = 1
bsm46179
07/28/2025 01:20 PM

CPGS Facility Map

Aerial Map and Property Boundary

0 1,000 2,000 Meters

Appendix C
Emissions Calculations

Potential Criteria Air Pollutant Emissions Summary

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

This table summarizes Project Potential to Emit (PTE) values for all unit emissions in tons per year (TPY).

Emissions Source	VOC	NO_X	CO	SO_2	PM	PM_{10}	$PM_{2.5}$	CO_2e	NH_3
	tpy								
18V50SG Wartsila Engines	807	198	607	8.35	360	360	360	1,662,062	178
18V50SG Wartsila Engines Startup	44.40	102	120	0.51	36.00	36.00	36.00		--
Combustion Turbines (Controlled)	38.12	58.41	71.13	6.09	50.76	50.76	50.76	562,406	72.08
Combustion Turbines Startup/Shutdown	3.90	10.31	27.71	0.22	1.80	1.80	1.80		--
Inlet Air Heaters	0.57	1.27	3.91	0.06	0.79	0.79	0.79	12,361	--
Fire Pump	0.03	0.62	0.58	0.21	0.03	0.03	0.03	114	--
Sulfur Hexafluoride Equipment	--	--	--	--	--	--	--	64	--
Total New PTE	**893.87**	**370.86**	**829.93**	**15.43**	**449.19**	**449.19**	**449.19**	**2,237,008**	**250**
PSD Threshold	40	40	100	40	25	15	10	75,000	--
Significant for PSD?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	--
New Exempt Sources									
Heaters and HVAC Equipment	1.13	20.30	15.23	0.12	1.56	1.56	1.56	31,501	--

Potential HAP Air Pollutant Emissions Summary

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station - CPGS Facility

This table summarizes the CPGS Potential to Emit (PTE) HAP values for all unit emissions in tons per year (TPY).

Pollutant	Wartsilas (tpy)	CTGs (tpy)	Air Heaters (tpy)	Fire Pump (tpy)	Existing Sources (tpy)	Total HAP (tpy)
1,1,2,2-Tetrachloroethane	0.060	--	--			0.06
1,1,2-Trichloroethane	0.048	--	--			0.05
1,3-Butadiene	0.402	1.03E-03	--	2.73E-05		0.40
1,3-Dichloropropene	0.040	--	--			0.04
2-Methylnaphthalene	0.050	--	2.48E-06			0.05
2,2,4-Trimethylpentane	0.376	--	--			0.38
3-Methylchloranthrene	--	--	1.86E-07			1.86E-07
7,12-Dimethylbenz(a)anthracene	--	--	1.66E-06			1.66E-06
Acenaphthene	0.002	--	1.86E-07	9.90E-07		1.88E-03
Acenaphthylene	0.008	--	1.86E-07	3.53E-06		0.01
Acetaldehyde	12.58	9.61E-02	--	5.35E-04		12.68
Acrolein	7.74	1.54E-02	--	6.45E-05		7.75
Anthracene	--	--	2.48E-07	1.30E-06		1.55E-06
Benz(a)anthracene	--	--	1.86E-07	1.17E-06		1.36E-06
Benzene	0.662	2.19E-03	2.17E-04	6.51E-04		0.67
Benzo(b)fluoranthene	2.50E-04	--	1.86E-07	6.91E-08		2.50E-04
Benzo(a)pyrene	6.25E-04	--	1.24E-07	1.31E-07		6.25E-04
Benzo(g,h,i)perylene	6.23E-04	--	1.24E-07	3.41E-07		6.24E-04
Benzo(k)fluoranthene	--	--	1.86E-07	1.08E-07		2.94E-07
Biphenyl	0.319	--	--			0.32
Carbon Tetrachloride	0.055	--	--			0.06
Chlorobenzene	0.046	--	--			0.05
Chloroform	0.043	--	--			0.04
Chrysene	0.001	--	1.86E-07	2.46E-07		1.04E-03
Dibenzo(a,h)anthracene	--	--	1.24E-07	4.06E-07		5.31E-07
Dichlorobenzene	--	--	1.24E-04			1.24E-04
Ethylbenzene	0.060	7.68E-02	--			0.14
Ethylene Dibromide	0.067	--	--			0.07
Fluoranthene	0.002	--	3.10E-07	5.31E-06		1.68E-03
Fluorene	0.009	--	2.90E-07	2.04E-05		0.01
Formaldehyde	19.97	4.80E-02	7.76E-03	8.23E-04		20.03
Hexane	1.67	--	0.186			1.86
Indeno(1,2,3-cd)pyrene	--	--	1.86E-07	2.61E-07		4.48E-07
Methanol	3.76	--	--			3.76
Methylene Chloride	0.030	--	--			0.03
Naphthalene	0.112	3.12E-03	6.31E-05	5.91E-05		0.12
PAH	0.040	5.28E-03	--			0.05
Phenanthrene	0.016	--	1.76E-06	2.05E-05		0.02
Phenol	0.036	--	--			0.04
Propylene	--	6.96E-02	--	1.80E-03		0.07
Pyrene	0.002	--	5.17E-07	3.33E-06		2.05E-03
Styrene	0.036	--	--			0.04
Tetrachloroethane	0.004	--	--			0.00
Toluene	0.614	0.312	3.52E-04	2.85E-04		0.93
Vinyl Chloride	0.022	--	--			0.02
Xylenes	0.277	0.154	--	1.99E-04		0.43
Arsenic	--	--	2.07E-05			2.07E-05
Beryllium	--	--	1.24E-06			1.24E-06
Cadmium	--	--	1.14E-04			1.14E-04
Chromium	--	--	1.45E-04			1.45E-04
Cobalt	--	--	8.69E-06			8.69E-06
Manganese	--	--	3.93E-05			3.93E-05
Mercury	--	--	2.69E-05			2.69E-05
Nickel	--	--	2.17E-04			2.17E-04
Selenium	--	--	2.48E-06			2.48E-06
Total (tpy)	**49.17**	**0.78**	**0.195**	**0.004**	**1.18**	**51.33**
		Max iHAP				**20.03**

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Wartsila Engines Criteria Pollutants

Engine Information

Engine[1]	Single Engine Heat Input Rating (MMBtu/hr)	Single Engine Horsepower Rating (hp)	Number of Units	Total Engine Horsepower Rating (hp)	Annual Fuel Usage	
18V50SG Wartsila Engine	143.2	25,234	24	605,615	29,015	MMscf

Notes:

1) Emission Units are Wartsila Model 18V50SG natural gas fuel engines.

Natural Gas Conversions			Source
Natural Gas Heating Value	1,038	MMBTU/scf	Site Specific Natural Gas Data

SO_2 Emission Factors

Fuel Type	Value	Units	Source
Natural Gas	5.88E-04	lb/MMBtu	Natural Gas-fired Engines AP-42 Ch 3.2

Startup Emission Evaluation

Startup and Shutdown Durations

Engine	Startup Cycle Duration (Hours)	Number of Startup Events
Wartsila Engine - Natural Gas	0.50	1,000

Startup Emissions

Pollutant	Startup Sequence			
	Emission Rate (lb/30 min event)	Number of Startups Per Year[2]	Total Startup Duration (hrs/yr)	Total Startup Emissions (lbs/yr)
VOC (as propane) [1]	3.7	1,000	500	3,700
NO_X [1]	8.5	1,000	500	8,500
CO [1]	10	1,000	500	10,000
SO_2	0.04	1,000	500	42.10
$PM/PM_{10}/PM_{2.5}$ [1]	3.0	1,000	500	3,000
CO_2 [3]	1,723	1,000	500	1,722,946

Notes:

1.) Startup Emission Rates based on manufacturers provided data for a cold start. (Doc ID: DESA00030796, August 12, 2025)

2.) Based on a maximum of 1000 startups per year and the expectation that each startup lasts up to 30 minutes.

3.) Based on normal operating period emission rate over 30 minutes.

Startup Emission Summary

Pollutant	All Engines		
	Total Startup Emissions		Total Startup Duration
	lbs/yr	tpy	hrs/yr
VOC	88,800	44.40	12,000
NO_X	204,000	102.00	12,000
CO	240,000	120.00	12,000
SO_2	1,010	0.51	12,000
$PM/PM_{10}/PM_{2.5}$	72,000	36.00	12,000
CO_2	41,350,705	20,675	12,000

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Wartsila Engines Criteria Pollutants

Normal Operations Emission Evaluation

Criteria Pollutant Emission Summary: Natural Gas, Normal Operations

Pollutant	Single Engine		Total - All Engines	
	Hourly Emission Rate[1] (lb/hr)	Annual Emissions[3] (tpy)	Hourly Emission Rate[1] (lb/hr)	Annual Emissions[3] (tpy)
VOC (as propane)	8.1	33.62	195.36	806.84
NO_X	2.0	8.26	48.00	198.24
CO	6.1	25.28	146.88	606.61
SO_2 [2]	0.08	0.35	2.02	8.35
$PM/PM_{10}/PM_{2.5}$ (total)	3.6	14.99	87.12	359.81
NH3[4]	1.8	7.43	43.20	178.42

Notes:

1.) VOC, NO_x, CO, $PM_{10}/PM_{2.5}$ Wartsila engine emission factors based on emission guarantees provided by the manufacturer (04July2025).

2.) Uncontrolled SO_2 emission factor from AP-42 Chapter 3.2 for natural gas.

3.) Annual Emissions based on hourly emission rate * normal operating hours.

4.) Ammonia emisisons based on 8.5 ppm slip (1.8 lb/hr)

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Wartsila Engines HAP Emissions

Engine Information

Engine[1]	Single Engine Heat Input Rating (MMBtu/hr)	Single Engine Horsepower Rating (hp)	Total Engine Horsepower Rating (hp)	Number of Units
Wartsila Engine - Natural Gas	143.2	25,234	605,615	24

Notes:

1.) Emission Units are Wartsila Model 18V50SG natural gas fuel engines.

HAP Emissions

Pollutant	CAS. No.	Natural Gas Emissions				Total Emissions (TPY)
		Control Efficiency	Emission Factors[2]	Per Engine		
		%	lb/MMBTU	Hourly Emissions (lb/hr)	Annual Emissions (TPY)	
1,1,2,2-Tetrachloroethane	79-34-5	90%	4.00E-05	5.73E-04	2.51E-03	0.060
1,1,2-Trichloroethane	79-00-5	90%	3.18E-05	4.55E-04	1.99E-03	0.048
1,3-Butadiene	106-99-0	90%	2.67E-04	3.82E-03	0.02	0.402
1,3-Dichloropropene	542-75-6	90%	2.64E-05	3.78E-04	1.66E-03	0.040
2-Methylnaphthalene	91-57-6	90%	3.32E-05	4.75E-04	2.08E-03	0.050
2,2,4-Trimethylpentane	540-84-1	90%	2.50E-04	3.58E-03	0.02	0.376
Acenaphthene	83-32-9	90%	1.25E-06	1.79E-05	7.84E-05	0.002
Acenaphthylene	203-96-8	90%	5.53E-06	7.92E-05	3.47E-04	0.008
Acetaldehyde	75-07-0	90%	8.36E-03	0.12	0.52	12.58
Acrolein	107-028	90%	5.14E-03	0.07	0.32	7.74
Benzene	71-43-2	90%	4.40E-04	6.30E-03	0.03	0.66
Benzo(b)fluoranthene	205-99-2	90%	1.66E-07	2.38E-06	1.04E-05	0.00
Benzo(a)pyrene	50-32-8	90%	4.15E-07	5.94E-06	2.60E-05	0.00
Benzo(g,h,i)perylene	191-24-2	90%	4.14E-07	5.93E-06	2.60E-05	0.00
Biphenyl	92-51-3	90%	2.12E-04	3.04E-03	0.01	0.32
Carbon Tetrachloride	56-23-5	90%	3.67E-05	5.26E-04	2.30E-03	0.06
Chlorobenzene	108-90-7	90%	3.04E-05	4.35E-04	1.91E-03	0.05
Chloroform	67-66-3	90%	2.85E-05	4.08E-04	1.79E-03	0.04
Chrysene	218-01-9	90%	6.93E-07	9.92E-06	4.35E-05	0.00
Ethylbenzene	100-41-4	90%	3.97E-05	5.69E-04	2.49E-03	0.06
Ethylene Dibromide	106-93-4	90%	4.43E-05	6.34E-04	2.78E-03	0.07
Fluoranthene	206-44-0	90%	1.11E-06	1.59E-05	6.96E-05	0.00
Fluorene	86-73-7	90%	5.67E-06	8.12E-05	3.56E-04	0.01
Formaldehyde[1]	50-00-0	N/A	--	0.19	0.83	19.97
Hexane	110-54-3	90%	1.11E-03	0.02	0.07	1.67
Methanol	67-56-1	90%	2.50E-03	0.04	0.16	3.76
Methylene Chloride	75-09-2	90%	2.00E-05	2.86E-04	1.25E-03	0.030
Naphthalene	91-20-3	90%	7.44E-05	1.07E-03	4.67E-03	0.112
PAH	-	90%	2.69E-05	3.85E-04	1.69E-03	0.040
Phenanthrene	85-01-8	90%	1.04E-05	1.49E-04	6.52E-04	0.016
Phenol	108-95-2	90%	2.40E-05	3.44E-04	1.51E-03	0.036
Pyrene	129-00-0	90%	1.36E-06	1.95E-05	8.53E-05	0.002
Styrene	100-42-5	90%	2.36E-05	3.38E-04	1.48E-03	0.036
Tetrachloroethane	25322-20-7	90%	2.48E-06	3.55E-05	1.56E-04	0.004
Toluene	108-88-3	90%	4.08E-04	5.84E-03	0.03	0.614
Vinyl Chloride	75-01-4	90%	1.49E-05	2.13E-04	9.35E-04	0.022
Xylene	1330-20-7	90%	1.84E-04	2.63E-03	0.01	0.277
			All HAPs	**0.47**	**2.05**	**49.17**

Notes:

1.) Natural Gas HAP Emission Factors based on manufacturer emissions estimate.

2.) Natural Gas HAP emission factors, other than what is noted in Note #1, are based on AP-42, Section 3.2, Table 3.2-2 with a control efficiency of 90%. The control efficiency based on expected oxidation catalyst control for Volatile Organic HAPs during natural gas firing.

GHG Emissions

Emission Source		CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
Engine	**Engine Model**				
Natural Gas Firing	18V50SG	1,660,357	31.29	3.13	1,662,062
Total Natural Gas Engine PTE		**1,660,357**	**31.29**	**3.13**	**1,662,062**

Natural Gas GHG Emission Factors and Conversions			Source
CO_2	53.06	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	1.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	1.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Natural Gas Heating Value	1,038	MMBTU/scf	Site Specific Natural Gas Data
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Turbine - Criteria Emissions Simple Cycle

GE LM6000 PF

Number of Units:	3
Normal Operating Hours per CTG:	8,460

Manufacturer and Heat Balance Input Data

Case	100% CTG Load			75% CTG Load			50% CTG Load		
GE Case Number	**100**	**106**	**112**	**101**	**107**	**113**	**102**	**108**	**114**
Ambient Temp. (Deg. F)	**0**	**60**	**108**	**0**	**60**	**108**	**0**	**60**	**108**
Relative Humidity (%)	**60%**	**60%**	**10%**	**60%**	**60%**	**10%**	**60%**	**60%**	**10%**
CTG Inlet Conditioning	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**
CTG Steam/Water Injection	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**
Atmospheric Pressure (Psia)	**11.799**	**11.799**	**11.799**	**11.799**	**11.799**	**11.799**	**11.799**	**11.799**	**11.799**
Gross Plant Output (kW)	**40,588**	**37,149**	**26,467**	**30,450**	**27,873**	**19,864**	**18,229**	**18,590**	**13,256**
Net Plant Output (kW)	**39,573**	**36,220**	**25,805**	**29,689**	**27,176**	**19,367**	**17,773**	**18,125**	**12,925**
Gross Plant Heat Rate (Btu/kW-Hr) LHV	**8,126**	**8,360**	**8,958**	**8,680**	**8,842**	**9,961**	**11,221**	**10,366**	**12,155**
Gross Plant Heat Rate (Btu/kW-Hr) HHV	9,006	9,265	9,928	9,620	9,800	11,040	12,436	11,489	13,472
Net Plant Heat Rate (Btu/kW-Hr) LHV	**8,334**	**8,574**	**9,188**	**8,903**	**9,069**	**10,216**	**11,509**	**10,632**	**12,467**
Net Plant Heat Rate (Btu/kW-Hr) HHV	9,237	9,503	10,183	9,867	10,051	11,322	12,756	11,784	13,817
Plant Heat Input (MMBtu/Hr) LHV	**330**	**311**	**237**	**264**	**247**	**198**	**205**	**193**	**161**
Plant Heat Input (MMBtu/Hr) HHV	366	344	263	293	273	219	227	214	179
Exhaust Stack Characteristics									
Stack Exit Temperature (F)	**842**	**864**	**912**	**854**	**860**	**938**	**882**	**947**	**997**
Stack Diameter (ft) Estimated	**9.3**	**9.3**	**9.3**	**9.3**	**9.3**	**9.3**	**9.3**	**9.3**	**9.3**
Stack Flow (acfm)	**583,277**	**562,743**	**465,740**	**486,140**	**487,920**	**401,627**	**418,817**	**389,079**	**355,929**
Stack Velocity (ft/s)	145	140	116	121	121	100	104	96	88
Flue Gas Characteristics									
Mass Flow Rate (Lb/Hr)	**875,872**	**822,616**	**658,668**	**723,236**	**720,000**	**557,107**	**609,906**	**538,316**	**476,406**
Average MW (Lb/Lb Mole)	**28.6**	**28.3**	**28.4**	**28.6**	**28.5**	**28.3**	**28.6**	**28.5**	**28.5**
Ideal Gas Volume (Scf/Lb Mole)	**379.4**	**379.4**	**379.4**	**379.4**	**379.4**	**379.4**	**379.4**	**379.4**	**379.4**
Density (Lb/Scf)	0.0753	0.0745	0.0747	0.0753	0.0750	0.0747	0.0753	0.0750	0.0751
Volumetric Flow Rate (Scf/Hr)	11,633,841	11,036,306	8,812,901	9,603,813	9,596,005	7,458,106	8,102,936	7,178,619	6,344,758
Actual O2 Concentration (Vol. %)	14.05	13.69	14.07	14.19	14.39	14.02	13.94	14.10	14.27
Actual H2O Concentration (Vol. %)	6.26	8.92	8.08	6.13	6.97	8.24	6.36	7.23	6.83

Emissions

UNCONTROLLED Pollutant Concentrations									
NOx (ppmvd @ 15% O2)	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**	**15.0**
CO (ppmvd @ 15% O2)	**70.0**	**70.0**	**70.0**	**70.0**	**70.0**	**70.0**	**70.0**	**70.0**	**70.0**
VOC (ppmvd @ 15% O2)	**8.4**	**8.4**	**8.4**	**8.4**	**8.4**	**8.4**	**8.4**	**8.4**	**8.4**
NH3 (ppmvd @ 15% O2)	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**
CONTROLLED Pollutant Concentrations									
NOx (ppmvd @ 15% O2)	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**
CO (ppmvd @ 15% O2)	**6.0**	**6.0**	**6.0**	**6.0**	**6.0**	**6.0**	**6.0**	**6.0**	**6.0**
VOC (ppmvd @ 15% O2)	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**	**3.0**
NH3 (ppmvd @ 15% O2)	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**	**10.0**
UNCONTROLLED Actual Pollutant Concentrations									
NOx in flue gas (ppmv)	16.31	16.68	15.95	16.01	15.41	16.06	16.56	16.03	15.70
CO in flue gas (ppmv)	76.13	77.85	74.44	74.73	71.91	74.92	77.28	74.81	73.28
VOC in flue gas (ppmv)	9.14	9.34	8.93	8.97	8.63	8.99	9.27	8.98	8.79
NH3 in flue gas (ppmv)	10.88	11.12	10.63	10.68	10.27	10.70	11.04	10.69	10.47
CONTROLLED Actual Pollutant Concentrations									
NOx in flue gas (ppmv)	3.26	3.34	3.19	3.20	3.08	3.21	3.31	3.21	3.14
CO in flue gas (ppmv)	6.53	6.67	6.38	6.41	6.16	6.42	6.62	6.41	6.28
VOC in flue gas (ppmv)	3.26	3.34	3.19	3.20	3.08	3.21	3.31	3.21	3.14
NH3 in flue gas (ppmv)	10.88	11.12	10.63	10.68	10.27	10.70	11.04	10.69	10.47
Pollutant MW (Lb/Lb Mole)									
NOx (NO2)	**46.01**	**46.01**	**46.01**	**46.01**	**46.01**	**46.01**	**46.01**	**46.01**	**46.01**
CO	**28.01**	**28.01**	**28.01**	**28.01**	**28.01**	**28.01**	**28.01**	**28.01**	**28.01**
VOC	**30.03**	**30.03**	**30.03**	**30.03**	**30.03**	**30.03**	**30.03**	**30.03**	**30.03**
NH3	**17.03**	**17.03**	**17.03**	**17.03**	**17.03**	**17.03**	**17.03**	**17.03**	**17.03**
$(NH_4)_2SO_4$	**132.14**	**132.14**	**132.14**	**132.14**	**132.14**	**132.14**	**132.14**	**132.14**	**132.14**
SO2	**64.06**	**64.06**	**64.06**	**64.06**	**64.06**	**64.06**	**64.06**	**64.06**	**64.06**
UNCONTROLLED NOx Emission Rate									
Volumetric Flow Rate (Scf/Hr)	189.79	184.12	140.59	153.79	147.86	119.74	134.18	115.07	99.64
Mass Flow Rate (Lb/Hr)	23.01	22.33	17.05	18.65	17.93	14.52	16.27	13.95	12.08
Annual Emissions (Tons/Yr)	97.3	94.4	72.1	78.9	75.8	61.4	68.8	59.0	51.1
CONTROLLED NOx Emission Rate									
Volumetric Flow Rate (Scf/Hr)	37.96	36.82	28.12	30.76	29.57	23.95	26.84	23.01	19.93
Mass Flow Rate (Lb/Hr)	4.60	4.47	3.41	3.73	3.59	2.90	3.25	2.79	2.42
Annual Emissions (Tons/Yr)	19.5	18.9	14.4	15.8	15.2	12.3	13.8	11.8	10.2
UNCONTROLLED CO Emission Rate									
Volumetric Flow Rate (Scf/Hr)	885.70	859.23	656.07	717.68	690.02	558.79	626.16	537.01	464.97
Mass Flow Rate (Lb/Hr)	65.39	63.44	48.44	52.99	50.94	41.25	46.23	39.65	34.33
Annual Emissions (Tons/Yr)	276.6	268.3	204.9	224.1	215.5	174.5	195.5	167.7	145.2
CONTROLLED CO Emission Rate									
Volumetric Flow Rate (Scf/Hr)	75.92	73.65	56.23	61.52	59.14	47.90	53.67	46.03	39.85
Mass Flow Rate (Lb/Hr)	5.60	5.44	4.15	4.54	4.37	3.54	3.96	3.40	2.94
Annual Emissions (Tons/Yr)	23.7	23.0	17.6	19.2	18.5	15.0	16.8	14.4	12.4

UNCONTROLLED VOC Emission Rate									
Volumetric Flow Rate (Scf/Hr)	106.28	103.11	78.73	86.12	82.80	67.05	75.14	64.44	55.80
Mass Flow Rate (Lb/Hr)	8.41	8.16	6.23	6.82	6.55	5.31	5.95	5.10	4.42
Annual Emissions (Tons/Yr)	35.6	34.5	26.4	28.8	27.7	22.4	25.2	21.6	18.7
CONTROLLED VOC Emission Rate									
Volumetric Flow Rate (Scf/Hr)	37.96	36.82	28.12	30.76	29.57	23.95	26.84	23.01	19.93
Mass Flow Rate (Lb/Hr)	3.00	2.91	2.23	2.43	2.34	1.90	2.12	1.82	1.58
Annual Emissions (Tons/Yr)	12.7	12.3	9.4	10.3	9.9	8.0	9.0	7.7	6.7
SO2 Emission Rate									
Mass Flow Rate (Lb/Hr)	**0.48**	**0.45**	**0.34**	**0.38**	**0.36**	**0.29**	**0.30**	**0.28**	**0.23**
Annual Emissions (Tons/Yr)	2.0	1.9	1.4	1.6	1.5	1.2	1.3	1.2	1.0
$(NH_4)_2SO_4$ Emission Rate[3]									
SO2 Mass Flow Rate (Lb/Hr)	0.05	0.05	0.03	0.04	0.04	0.03	0.03	0.03	0.02
$(NH_4)_2SO_4$ Mass Flow Rate (Lb/Hr)	0.10	0.09	0.07	0.08	0.07	0.06	0.06	0.06	0.05
$(NH_4)_2SO_4$ Annual Emissions (Tons/Yr)	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2
PM10 Emission Rate Total									
Mass Flow Rate (Lb/Hr)	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**
Annual Emissions (Tons/Yr)	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
NH3 Emission Rate									
Volumetric Flow Rate (Scf/Hr)	126.53	122.75	93.72	102.53	98.57	79.83	89.45	76.72	66.42
Mass Flow Rate (Lb/Hr)	5.68	5.51	4.21	4.60	4.42	3.58	4.02	3.44	2.98
Annual Emissions (Tons/Yr)	24.0	23.3	17.8	19.5	18.7	15.2	17.0	14.6	12.6

Notes:

1.) The emissions estimates shown in the table above are per stack.

2.) Annual emissions in tons per year based on normal operation which is 8,760-300 = 8,460 hours. Normal operation does not include startup or shutdown hours.

3.) $(NH_4)_2SO_4$ mass flow rate based on an assumed 10% of SO_2 mass flow rate.

4.) Performance data including emissions are consistent with previous permit applications and permit, except for NOx. NOx BACT was previously set at 5 pmm for simple cycle units at CPGS. Black hills has proposed as a lower emissoin rate due to modeling.

Highest Case Uncontrolled Emissions

Pollutant	Single Turbine Pollutant Concentrations[1]		Single CTG		Total - All CTGs	
	(ppmvd @ 15% O2)	Actual Concentrations in flue gas (ppmv)	Hourly Emission Rate (lb/hr)	Annual Emissions (tpy)	Hourly Emission Rate (lb/hr)	Annual Emissions (tpy)
NOx	15.0	16.31	23.01	97.35	69.04	292.05
CO	70.0	76.13	65.39	276.60	196.17	829.80
VOC	8.4	9.14	8.41	35.58	25.23	106.74
NH3	10.0	10.88	5.68	24.03	17.04	72.08
SO2	--	--	0.48	2.03	1.44	6.09
Total PM/PM10/PM2.5	--	--	4.00	16.92	12.00	50.76

Notes:

1.) Based on emission rates from existing GE LM6000 PF at CPGS or manufacturer data.

Highest Case Controlled Emissions

Pollutant	Single Turbine Pollutant Concentrations[1,2]		Single CTG		Total - All CTGs	
	(ppmvd @ 15% O2)	Actual Concentrations in flue gas (ppmv)	Hourly Emission Rate (lb/hr)	Annual Emissions (tpy)	Hourly Emission Rate (lb/hr)	Annual Emissions (tpy)
NOx	3.0	3.26	4.60	19.47	13.81	58.41
CO	6.0	6.53	5.60	23.71	16.81	71.13
VOC	3.0	3.26	3.00	12.71	9.01	38.12
NH3	10.0	10.88	5.68	24.03	17.04	72.08
SO2	--	--	0.48	2.03	1.44	6.09
Total PM/PM10/PM2.5	--	--	4.00	16.92	12.00	50.76

Notes:

1.) Based on emission rates from existing GE LM6000 PF at CPGS, other than NOx.

2.) NOx emissions are proposed at a rate of 3 ppm for modeling purposes, 3 ppm is considered more stringent than BACT for similar sources.

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Turbine - Startup & Shutdown Criteria Emissions Simple Cycle

GE LM6000 PF

Number of Units:	3

Assumptions	Value	Units	Notes
Total Startup Duration	20	minutes	Includes 10 minutes of turbine startup to full load (GE Curve) and an additional 10 minutes for SCR/Oxidation Catalyst warm up.
Total Shutdown Duration	10	minutes	Includes 2 minutes prior to the 8 minute turbine shutdown period (GE Curve).
SCR/Ox Cat Startup Duration	10	minutes	SCR/Ox Cat warm up period after turbine start of 10 minutes.
SCR/Ox Cat Shutdown Duration	2	minutes	Additional SCR/Ox Cat shutdown period in addition to the 8 minute GE shutdown curve.
Starts/Shutdowns/Day	12	each	
Starts/CTG/Year	600	each	
Shutdown/CTG/Year	600	each	
Startup Hours/Year	200	hours	per unit
Shutdown Hours/Year	100	hours	per unit
Total Startup/Shutdown hours	300	hours	per unit

	Emission Rate (pound per period)			
Initial Startup/Shutdown	**NO_x**	**CO**	**VOC**	**Reference**
Startup Emission Data	3.5	10.5	1.4	Initial 10 minutes - GE LM6000 Start Curve at ISO Conditions
Shutdown Emission Data	3.3	11.5	1.59	Final 8 minutes - GE LM6000 Shutdown Curve at ISO Conditions

Maximum Hourly Emission Rate (Steady State)

	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)	NO_x (lb/min)	CO (lb/min)	VOC (lb/min)
Without SCR/Ox Cat Control	38.36	65.39	8.41	0.639	1.090	0.140
With SCR/Ox Cat Control	7.671	5.605	3.004	0.128	0.093	0.050

	Startup/Shutdown Emissions Estimate					
	Single CTG				Total - All CTGs	
Pollutant	**Start (lb/event)[1]**	**Shutdown (lb/event)[2]**	**Combined Startup/Shutdown[3] (lb/hr)**	**Combined Startup/Shutdown (tpy)**	**Combined Startup/Shutdown[3] (lb/hr)**	**Combined Startup/Shutdown (tpy)**
NO_x	7.3	4.1	22.9	3.4	68.76	10.31
CO	16.4	14.4	61.6	9.2	184.75	27.71
VOC	2.4	2.0	8.7	1.3	26.03	3.90
SO2[4]	0.16	0.08	0.48	0.1	1.44	0.22
Total PM/PM10/PM2.5[4]	1.33	0.67	4.0	0.6	12.00	1.80

Notes:

1) NO_x, CO and VOC lb/event assumes the control efficiency of the oxidation catalyst increases linearly from minute 11 through minute 20 of the startup event.

2) Shutdown lb/event values are calculated as ((emissions during final 8 minutes)/8 minutes)*2 minutes + (emissions during final 8 minutes)

3) The combined startup/shutdown emission rate represents the 1-hour emission rate assuming two 20-minute turbine startups and two 10-minute turbine shutdowns.

4) Emission rate based on normal operating period emission rates.

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Turbine - HAP Emissions Simple Cycle

GE LM6000 PF

Number of Units:	3
Total Operating Hours per CTG:	8,760

CatOx Control Efficiency for Organic HAPs = **50%**

	Max. MMBtu/hr	MMBtu/Yr
Combustion Turbine Fuel Use =	365.5	3,201,961

		Single CTG		Total - All CTGs	
Organic HAP[1]	**Emission Factor (lb/MMBtu)**	**HAP Emissions Maximum (lb/hr)**	**HAP Emissions (tpy)**	**HAP Emissions Maximum (lb/hr)**	**HAP Emissions (tpy)**
1,3-Butadiene	4.30E-07	7.86E-05	3.44E-04	2.36E-04	0.001
Acetaldehyde	4.00E-05	0.007	0.032	0.022	0.096
Acrolein	6.40E-06	0.001	0.005	0.004	0.015
Benzene	9.10E-07	1.66E-04	0.001	0.000	0.002
Ethylbenzene	3.20E-05	0.006	0.026	0.018	0.077
Formaldehyde	2.00E-05	0.004	0.016	0.011	0.048
Naphthalene	1.30E-06	2.38E-04	0.001	0.001	0.003
PAH	2.20E-06	4.02E-04	0.002	0.001	0.005
Propylene Oxide	2.90E-05	0.005	0.023	0.016	0.070
Toluene	1.30E-04	0.024	0.104	0.071	0.312
Xylenes	6.40E-05	0.012	0.051	0.035	0.154
Total HAP Emissions per Combustion Turbine =		**0.060**	**0.261**	**0.179**	**0.783**

Notes:

1.) Hazardous air pollutant emissions factors from AP-42 Table 3.1-3.

2.) Controlled emissions assume 50% control efficiency from Catalytic Oxidation system.

3.) Annual emissions in tons per year based on 8,760 hours.

GHG Emissions

Emission Source	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
Natural Gas Firing: GE LM6000 PF	561,829	10.59	1.06	562,406
Total CT PTE	**561,829**	**10.59**	**1.06**	**562,406**

Natural Gas GHG Emission Factors and Conversions			Source
CO_2	53.06	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	1.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	1.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Natural Gas Heating Value	1,038	MMBTU/scf	Site Specific Natural Gas Data
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Inlet Air Heater Criteria Emissions

Group Simoneau A1-600 Air Inlet Heaters		
No. of Heaters:	3	
Heat Input Rating, Each (MMBtu/hr):	16.07	Manufacturer's data
Fuel Type:	Natural Gas	
Total Maximum NG Consumption 1 Heater (scf/hr):	15,486	Calculated
Total Maximum NG Consumption All Heaters (scf/hr):	46,457	Calculated
Annual Hours of Operation (hr/yr):	4,380	Jacobs[1]
Annual NG Consumption (MMscf/yr):	203.5	Calculated
Natural Gas Heating Value (Btu/scf) HHV:	1,038	Zachry

Stack Conditions		
Height (ft):	20	Jacobs
Temperature (deg F):	160	Zachry
Flue Gas Flowrate (ACFM):	13.0	Manufacturer's data
Velocity (ft/s):	0.044	Calculated
Stack Inside Diameter (ft):	2.5	Manufacturer's data

				Single Heater		Total - All Heaters	
Pollutant	Emission Factor (ppm @ 3% O_2)	Emission Factor[2,3,5] (lb/MMBtu)	Emission Factor (lb/MMscf)	Max. Hourly Emissions (lb/hr)	Annual Emissions (tpy)	Max. Hourly Emissions (lb/hr)	Annual Emissions (tpy)
NO_X	9	0.012	N/A	0.19	0.42	0.58	1.27
CO	50	0.037	N/A	0.59	1.30	1.78	3.91
SO_2	N/A	N/A	0.61	0.01	0.02	0.03	0.06
PM total ($PM/PM_{10}/PM_{2.5}$)[4]	N/A	N/A	7.73	0.12	0.26	0.36	0.79
VOC	N/A	N/A	5.59	0.09	0.19	0.26	0.57

Notes:

1.) Maximum hours of operation based on engineering judgement.

2.) Emission Factors (lb/MMscf) for SO_2, PM, and VOC criteria pollutants from AP-42 Fifth Edition, Table 1.4-2.

3.) Assume Total PM Emission Factor in AP-42, Table 1.4-2 as PM_{10} Emission Factor.

4.) Emission Factors (lb/MMscf) for SO_2, PM, and VOC criteria pollutants from AP-42 Fifth Edition, Table 1.4-2 are based on an average natural gas higher heating value of 1,020 Btu/scf, and have been corrected to an emission factor based on a site higher heating value of 1,037.6 Btu/scf.

5.) NOx and CO emission rate in ppm based on predicted BACT.

New Emission Sources - Potential to Emit Calculations
Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station
Inlet Air Heater HAP Emissions

Group Simoneau A1-600 Air Inlet Heaters		
No. of Heaters:	3	
Heat Input Rating, Each (MMBTU/hr):	16.07	Manufacturer's data
Fuel Type:	Natural Gas	
Total Maximum NG Consumption (scf/hr):	15,486	Calculated
Annual Hours of Operation (hr/yr):	4,380	Jacobs[1]
Natural Gas Heating Value (Btu/scf):	1,038	Zachry

		Single Heater		**Total - All Heaters**	
Pollutant	**Emission Factor[2,3] (lb/MMscf)**	**Hourly Emissions (lb/hr)**	**Annual Emissions (tpy)**	**Hourly Emissions (lb/hr)**	**Annual Emissions (tpy)**
Metals					
Arsenic	2.03E-04	3.15E-06	6.90E-06	9.45E-06	2.07E-05
Beryllium	1.22E-05	1.89E-07	4.14E-07	5.67E-07	1.24E-06
Cadmium	1.12E-03	1.73E-05	3.79E-05	5.20E-05	1.14E-04
Chromium	1.42E-03	2.21E-05	4.83E-05	6.62E-05	1.45E-04
Cobalt	8.54E-05	1.32E-06	2.90E-06	3.97E-06	8.69E-06
Manganese	3.87E-04	5.99E-06	1.31E-05	1.80E-05	3.93E-05
Mercury	2.64E-04	4.10E-06	8.97E-06	1.23E-05	2.69E-05
Nickel	2.14E-03	3.31E-05	7.24E-05	9.92E-05	2.17E-04
Selenium	2.44E-05	3.78E-07	8.28E-07	1.13E-06	2.48E-06
Subtotal Metals		**8.76E-05**	**1.92E-04**	2.63E-04	5.75E-04
Organics					
2-Methylnaphthalene	2.44E-05	3.78E-07	8.28E-07	1.13E-06	2.48E-06
3-Methylchloranthrene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
7,12-Dimethylbenz(a)anthracene	1.63E-05	2.52E-07	5.52E-07	7.56E-07	1.66E-06
Acenaphthene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
Acenaphthylene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
Anthracene	2.44E-06	3.78E-08	8.28E-08	1.13E-07	2.48E-07
Benz(a)anthracene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
Benzene	2.14E-03	3.31E-05	7.24E-05	9.92E-05	2.17E-04
Benzo(a)pyrene	1.22E-06	1.89E-08	4.14E-08	5.67E-08	1.24E-07
Benzo(b)fluoranthene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
Benzo(g,h,i)perylene	1.22E-06	1.89E-08	4.14E-08	5.67E-08	1.24E-07
Benzo(k)fluoranthene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
Chrysene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
Dibenzo(a,h)anthracene	1.22E-06	1.89E-08	4.14E-08	5.67E-08	1.24E-07
Dichlorobenzene	1.22E-03	1.89E-05	4.14E-05	5.67E-05	1.24E-04
Fluoranthene	3.05E-06	4.73E-08	1.03E-07	1.42E-07	3.10E-07
Fluorene	2.85E-06	4.41E-08	9.66E-08	1.32E-07	2.90E-07
Formaldehyde	7.63E-02	1.18E-03	2.59E-03	3.54E-03	7.76E-03
Hexane	1.83E+00	2.84E-02	6.21E-02	8.51E-02	1.86E-01
Indeno(1,2,3-cd)pyrene	1.83E-06	2.84E-08	6.21E-08	8.51E-08	1.86E-07
Naphthalene	6.21E-04	9.61E-06	2.10E-05	2.88E-05	6.31E-05
Phenanthrene	1.73E-05	2.68E-07	5.86E-07	8.03E-07	1.76E-06
Pyrene	5.09E-06	7.88E-08	1.72E-07	2.36E-07	5.17E-07
Toluene	3.46E-03	5.36E-05	1.17E-04	1.61E-04	3.52E-04
Subtotal Organics		**0.0297**	**0.0649**	8.90E-02	1.95E-01
Total HAP Emissions =		**0.0297**	**0.0651**	8.92E-02	1.95E-01

Notes:

1.) Maximum hours of operation based on engineering judgement.

2.) Emission Factors from AP-42 Tables 1.4-3 and 1.4-4.

3.) Emission Factors from AP-42 Tables 1.4-3 and 1.4-4 are based on an average natural gas higher heating value of 1,020 Btu/scf, and have been corrected to an emission factor based on a site higher heating value of 1,037.6 Btu/scf.

GHG Emissions

Emission Source	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
Natural Gas Firing: Inlet Air Heaters	12,349	0.23	0.023	12,361
Total Natural Gas Engine PTE	**12,349**	**0.23**	**0.023**	**12,361**

Natural Gas GHG Emission Factors and Conversions			Source
CO_2	53.06	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	1.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	1.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Natural Gas Heating Value	1,038	MMBTU/scf	Site Specific Natural Gas Data
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

400-hp Diesel Emergency Fire Pump

Fire Pump Information	Value	Source
Fire Pump Rating (KW)	298	Calculated
Fire Pump Rating (HP)	400	Provided by BHE
Annual Hours of Operations (hrs/yr)	500	Hours of emergency use per EPA Guidance
Fuel Usage (l/hr)	77	Provided by BHE
Heat Input (MMBtu/hr)	2.79	Calculated

Criteria Pollutant Emissions

Pollutant	Emission Factor per Fire Pump[1] (g/kW-hr)	Fire Pump Hourly Emissions (lb/hr)	Fire Pump Annual Emissions (tpy)
VOC	0.20	0.13	0.03
NO_X	3.80	2.50	0.62
CO	3.50	2.30	0.58
SO_x[2]	2.05E-03	0.82	0.21
PM	0.20	0.13	0.03
PM_{10}	0.20	0.13	0.03
$PM_{2.5}$	0.20	0.13	0.03

Notes:

1.) VOC, NO_x, CO, and PM Emission Factors from Table 4 to Subpart IIII of Part 60, Title 40 Emission Standards for Stationary Fire Pumps from 225 to 450 KW. The combined 'NOx + NMHC' emission factor contains 95% NOx and 5% VOC per SCAQMD.

2.) SO_x Emission Factor from AP-42 Table 3.3-1 for diesel fuel and is in units of lb/hp-hr.

HAP + Other Toxics Emissions

HAP Emissions			
Pollutant	**Emission Factor[1] (lb/MMBtu)**	**Fire Pump Emissions (lb/hr)**	**Fire Pump Emissions (tpy)**
Benzene	9.33E-04	2.60E-03	6.51E-04
Toluene	4.09E-04	1.14E-03	2.85E-04
Xylenes	2.85E-04	7.95E-04	1.99E-04
1,3-Butadiene	3.91E-05	1.09E-04	2.73E-05
Formaldehyde	1.18E-03	3.29E-03	8.23E-04
Acetaldehyde	7.67E-04	2.14E-03	5.35E-04
Acrolein	9.25E-05	2.58E-04	6.45E-05
Naphthalene	8.48E-05	2.36E-04	5.91E-05
Total HAPS		**1.06E-02**	**2.64E-03**
Other Toxic Emissions			
Propylene	2.58E-03	7.20E-03	1.80E-03
Acenaphthylene	5.06E-06	1.41E-05	3.53E-06
Acenaphthene	1.42E-06	3.96E-06	9.90E-07
Fluorene	2.92E-05	8.14E-05	2.04E-05
Phenanthrene	2.94E-05	8.20E-05	2.05E-05
Anthracene	1.87E-06	5.22E-06	1.30E-06
Fluoranthene	7.61E-06	2.12E-05	5.31E-06
Pyrene	4.78E-06	1.33E-05	3.33E-06
Benz(a)anthracene	1.68E-06	4.69E-06	1.17E-06
Chrysene	3.53E-07	9.84E-07	2.46E-07
Benzo(b)fluoranthene	9.91E-08	2.76E-07	6.91E-08
Benzo(k)fluoranthene	1.55E-07	4.32E-07	1.08E-07
Benzo(a)pyrene	1.88E-07	5.24E-07	1.31E-07
Indeno(1,2,3-cd)pyrene	3.75E-07	1.05E-06	2.61E-07
Dibenzo(a,h)anthracene	5.83E-07	1.63E-06	4.06E-07
Benzo(g,h,l)perylene	4.89E-07	1.36E-06	3.41E-07
Highest Individual HAP (Propylene)		**7.20E-03**	**1.80E-03**
Total Toxic Emissions (HAPs + Other Toxics)		**1.80E-02**	**4.50E-03**

Notes:

1.) HAP and Other Toxic Emission Factors from AP-42, Section 3.3, Table 3.3-2 for uncontrolled diesel internal combustion engines (less than 600 horsepower (hp)).

GHG Emissions

Source Name	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
Diesel Fire Pump	113.68	4.61E-03	9.22E-04	114.06

Diesel Fuel GHG Emission Factors and Conversions			Source
CO_2	73.96	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	3.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	6.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Default HHV	0.1380	MMBtu/gal	40 CFR 98.33 Table C-1
Density of Distillate #2	7.3	lbs/gallon	AP-42 Appendix A
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--
	32	MW Sulfur	--
	64	MW SO2	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Exempt Heaters and HVAC Equipment

Location (Building)	Equipment Description	Rated Heat Input (BTU/hr)	Number at Location	Total Heat Input (MMBtu/hr)
Engine Halls	Direct Gas-fired MUA (43,000 CFM)	1,386,000	24	33.264
	Gas Unit Heater	87,150	40	3.486
Electrical Area[1]	Rooftop Unit (4,800 CFM Gas Heat)	240,000	4	0.960
	Rooftop Unit (24,000 CFM Gas Heat)	440,000	4	1.760
Mechanical Area	Direct Gas-fired MUA (6,000 CFM)	220,000	4	0.880
	Direct Gas-fired MUA (12,500 CFM)	330,000	8	2.640
	Gas-fired Hot Water Heater	120,000	4	0.480
	Gas Unit Heater	87,150	8	0.697
Warehouses[2]	Air Handling Unit (7000 CFM)	250,000	4	1.000
	Air Handling Unit (7000 CFM)	180,000	4	0.720
	Gas-fired Hot Water Heater	199,000	4	0.796
	Gas Unit Heater	87,150	24	2.092
		Total	**132**	**48.77**

Notes:

1.) For the Electrical Area: Rooftop Unit (4,800 CFM Gas Heat) - Will be 4 prime and 4 standby units; Rooftop Unit (24,000 CFM Gas Heat) - Will be 4 prime and 4 standby units. Emissions have been estimated for prime units only.

2.) For the Warehouses: 0.180 MMBtu/hr Air Handling Unit (7000 CFM) - Will be 4 prime and 4 standby units. Emissions have been estimated for prime unit only.

Heaters Information	Value	Units
Operating Schedule	8,760	hrs/yr
Heat Content of Fuel	1,038	BTU/scf
Total Heat Input	48.77	MMBtu/hr
HI (>0.3 MMBtu)	37.66	MMBtu/hr
HI (<0.3 MMBtu)	11.11	MMBtu/hr
Potential Fuel Usage	0.047	MMscfh
Fuel Use (>0.3 MMBtu)	0.036	MMscfh
Fuel Use (<0.3 MMBtu)	0.011	MMscfh

Criteria Pollutants

Pollutant	Emission Factor[1] (lb/MMscf)	Total Emissions (lb/hr)	Total Emissions (TPY)
CO (> 0.3 MMBtu)	84	3.048	13.35
CO (< 0.3 MMBtu)	40	0.428	1.88
CO Total	-	3.476	15.23
NOx (> 0.3 MMBtu)	100	3.629	15.89
NOx (< 0.3 MMBtu)	94	1.006	4.41
NOx Total	-	4.635	20.30
PM/PM10/PM2.5[2]	7.6	0.357	1.56
SO_2	0.6	0.028	0.12
VOC, non-methane	5.5	0.258	1.13

Notes:

1.) Emission factors, from AP-42, Section 1.4 Tables 1.4-1, 1,4-2. Residential Furnace emissions factors in Table 1.4-1 for CO and NOx used for heaters less than 0.3 MMBtu. Small uncontrolled boiler emission factors in Table 1.4-1 used for heaters greater than 0.3 MMBtu/hr.

2.) Assume PM10 and PM2.5 = 100% of total particulate, see AP-42, Table 1.4-1.

HAP Pollutants

Pollutant	Emission Factor[1] (lb/MMscf)	Total Emissions (lb/hr)	Total Emissions[2] (TPY)
Benzene	0.002	9.87E-05	4.32E-04
Dichlorobenzene	0.001	5.64E-05	2.47E-04
Formaldehyde	0.075	3.52E-03	1.54E-02
Naphthalene	6.10E-04	2.87E-05	1.26E-04
Hexane	1.80	0.085	0.370
Toluene	3.40E-03	1.60E-04	7.00E-04
Total			**0.387**

Notes:

1.) Emission factors, from AP-42, Section 1.4-3 and 1.4-4

2.) While the combustion of natural gas will result in additional HAPs, emissions from those HAPs are expected to be less than 0.00001 TPY. Therefore, those HAP emissions have not be speciated.

GHG Emissions

Emission Source	CO_2 Emissions (tpy)	CH_4 Emissions (tpy)	N_2O Emissions (tpy)	CO_2e Emissions (tpy)
Natural Gas Heaters and HVAC Equipment	31,475	0.47	0.05	31,501

Natural Gas GHG Emission Factors and Conversions			Source
CO_2	66.83	kg/MMBtu	40 CFR 98.33 Table C-1
CH_4	1.00E-03	kg/MMBtu	40 CFR 98.33 Table C-2
N_2O	1.00E-04	kg/MMBtu	40 CFR 98.33 Table C-2
Natural Gas Heating Value	1,038	MMBTU/scf	40 CFR 98 Subpart C, Table C-1
Conversion	1.1023	ton/tonne	--
	0.0010	tonne/kg	--

Global Warming Potentials		Source
GWP CO_2 =	1	40 CFR 98 Subpart A, Table A-1
GWP CH_4 =	28	40 CFR 98 Subpart A, Table A-1
GWP N_2O =	265	40 CFR 98 Subpart A, Table A-1

New Emission Sources - Potential to Emit Calculations

Cheyenne Light, Fuel & Power - Cheyenne Prairie Generating Station

Sulfur Hexafluoride (SF6) Equipment

Location (Building)	Equipment Description	SF6 Capacity (lbs)	Number at Location	Total Weight (lbs)
Substation	Circuit Breakers	117	6	702
	Circuit Breakers	64	6	384
			Total	**1086**

Emission Factor	Value[1]	Units
Leak Rate	0.5%	% in 12-month period

Notes:

1.) Based on BACT limit for SF6 containing equipment

GHG Emissions

Emission Source	SF6 Emissions[1] (lbs/year)	SF6 Emissions (tpy)	CO_2e Emissions (tpy)
SF6 Equipment	5.4	0.003	64

Notes:

1.) SF6 emissions based on total SF6 * annual max leak rate

Global Warming Potentials		Source
GWP SF6 =	23,500	40 CFR 98 Subpart A, Table A-1

Appendix D
RBLC Search and Cost Analysis

TABLE 1A

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for NOx

Simple Cycle Turbines Firing Natural Gas

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
AK-0085	ALASKA GASLINE DEVELOPMENT CORPORATION GAS TREATMENT PLANT NORTH SLOPE BOROUGH, AK	Six (6) Simple Cycle Gas-Turbines (Power Generation)	386	MM BTU/H	DLN combustors and Good Combustion Practices	15	PPMV @ 15% O2	3-HOUR AVERAGE	BACT-PSD
IN-0261	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STATION VERMILLION, IN	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	80	MW	GOOD COMBUSTION PRACTICES	250 25	LB/H TON/12 CONSEC. MONTH	EACH TURBINE COMPLIANCE DETERMINED END OF EACH MONTH	BACT-PSD
LA-0307	MAGNOLIA LNG, LLC MAGNOLIA LNG FACILITY CALCASIEU, LA	Gas Turbines (8 units)	333	MM BTU/H	Dry Low NOX burners and good combustion practices	25	PPMVD	@15 %O2	BACT-PSD
LA-0331	VENTURE GLOBAL CALCASIEU PASS, LLC CALCASIEU PASS LNG PROJECT CAMERON, LA	Aeroderivative Simple Cycle Combustion Turbine	263	MM BTU/H	Selective Catalytic Reduction (SCR), exclusive combustion of fuel gas, and good combustion practices.	2.5	PPMV	30 DAY ROLLING AVERAGE	BACT-PSD
LA-0383	LAKE CHARLES LNG EXPORT COMPANY, LLC EXPORT TERMINAL CALCASIEU, LA	Turbines (EQT0020 - EQT0031)	508.8 and 511.3	MM BTU/H	LNB + SCR	3.1	PPMVD @15%O2	3-HOUR AVERAGE	BACT-PSD
MI-0454	LANSING BOARD OF WATER AND LIGHT LBWL-ERICKSON STATION EATON, MI	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	667	MM BTU/H	DLNB and good combustion practices.	25 60	PPM LB/H	4-HR ROLLING AVG EXCEPT <75% PEAK LOAD 24-HR ROLLING AVG EXCEPT SU/SD	BACT-PSD
*TN-0187	TENNESSEE VALLEY AUTHORITY JOHNSONVILLE HUMPHREYS, TN	Ten Simple Cycle NG Turbines	465.8	MM BTU/H	dry low-NOx burners selective catalytic reduction	5 21.8	PPMVD @ 15% O2 LB/EVENT	4-HOUR ROLLING AVERAGE EXCLUDING STA/SHU STARTUP AND SHUTDOWN	BACT-PSD
TX-0900	ECTOR COUNTY ENERGY CENTER LLC ECTOR, TX	Simple Cycle Turbines			Equipped with dry-low NOx burners with best management practices and good combustion practices. Minimize the duration of startup and shutdown events to less than 60 minutes per event. Limit MSS by 140 lb/hr maximum allowable emission rate for	9 15	PPMVD PPMVD	3% O2 3 HR AVG PEAK 3% O2 1 HR AVG	BACT-PSD
TX-0933	NACERO TX 1 LLC NACERO PENWELL FACILITY ECTOR, TX	TURBINE	34.5	MW	LOW NOX BURNERS AND SCR	9	PPMVD	15% O2	BACT-PSD
*TX-0989	ENTERGY TEXAS INC LONE STAR POWER STATION LIBERTY, TX	Simple Cycle Gas Turbines			Dry-low NOx (DLN) combustors and an aqueous ammonia-based SCR system	2.5	PPMVD	15% O2 1-HR	LAER

RBLC search conducted 06/03/2025

TABLE 1B

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for CO

Simple Cycle Turbines Firing Natural Gas

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
AK-0085	ALASKA GASLINE DEVELOPMENT CORPORATION GAS TREATMENT PLANT NORTH SLOPE BOROUGH, AK	Six (6) Simple Cycle Gas-Turbines (Power Generation)	386	MM BTU/H	Good Combustion Practices and burning clean fuels (NG)	15	PPMV @ 15% O2	3-HOUR AVERAGE	BACT-PSD
IN-0261	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STATION VERMILLION, IN	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	80	MW	GOOD COMBUSTION PRACTICES	525 52.5	LB/H TON/12 CONSEC. MONTH	EACH TURBINE COMPLIANCE DETERMINED END OF EACH MONTH	BACT-PSD
LA-0307	MAGNOLIA LNG, LLC MAGNOLIA LNG FACILITY CALCASIEU, LA	Gas Turbines (8 units)	333	MM BTU/H	good combustion practices and fueled by natural gas	0.062	LB/MM BTU	THREE ONE-HOUR TEST AVERAGE	BACT-PSD
LA-0331	VENTURE GLOBAL CALCASIEU PASS, LLC CALCASIEU PASS LNG PROJECT CAMERON, LA	Aeroderivative Simple Cycle Combustion Turbine	263	MM BTU/H	Proper Equipment Design, Proper Operation, and Good Combustion Practices.	36	PPMV	30 DAY ROLLING AVERAGE	BACT-PSD
LA-0331	VENTURE GLOBAL CALCASIEU PASS, LLC CALCASIEU PASS LNG PROJECT CAMERON, LA	Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	927	MM BTU/H	Proper Equipment Design, Proper Operation, and Good Combustion Practices.	25	PPMV	30 DAY ROLLING AVERAGE	BACT-PSD
LA-0383	LAKE CHARLES LNG EXPORT COMPANY, LLC EXPORT TERMINAL	Turbines (EQT0020 - EQT0031)	508.8 and 511.3	MM BTU/H	catalytic oxidation and carbon monoxide turndown	10	PPMVD @15%O2	3-HOUR AVERAGE, @ LOAD =>50%	BACT-PSD
MI-0454	LANSING BOARD OF WATER AND LIGHT LBWL-ERICKSON STATION EATON, MI	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	667	MM BTU/H	Dry low NOx burners and good combustion practices.	9	LB/H	HOURLY EXCEPT DURING SU/SD	BACT-PSD
*TN-0187	TENNESSEE VALLEY AUTHORITY JOHNSONVILLE HUMPHREYS, TN	Ten Simple Cycle NG Turbines	465.8	MM BTU/H	oxidation catalyst	5 25	PPMVD @ 15% O2 LB/EVENT	4-HOUR ROLLING AVERAGE EXCLUDING STA/SHU STARTUP AND SHUTDOWN	BACT-PSD
TX-0933	NACERO TX 1 LLC NACERO PENWELL FACILITY ECTOR, TX	TURBINE	34.5	MW	Oxidization catalyst, good combustion practices and the use of gaseous fuel	9	PPMVD	15% O2	BACT-PSD

RBLC search conducted 06/03/2025

TABLE 1C

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for VOC

Simple Cycle Turbines Firing Natural Gas

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
AK-0085	ALASKA GASLINE DEVELOPMENT CORPORATION GAS TREATMENT PLANT NORTH SLOPE BOROUGH, AK	Six (6) Simple Cycle Gas-Turbines (Power Generation)	386	MM BTU/H	Good Combustion Practices and burning clean fuels (NG)	0.0022	LB/MM BTU	3-HOUR AVERAGE	BACT-PSD
IN-0261	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STATION VERMILLION, IN	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	80	MW	GOOD COMBUSTION PRACTICES	17.6 1.76	LB/H TON/12 CONSEC. MONTH	EACH TURBINE COMPLIANCE DETERMINED END OF EACH MONTH	BACT-PSD
LA-0307	MAGNOLIA LNG, LLC MAGNOLIA LNG FACILITY CALCASIEU, LA	Gas Turbines (8 units)	333	MM BTU/H	good combustion practices and fueled by natural gas	0			BACT-PSD
LA-0331	VENTURE GLOBAL CALCASIEU PASS, LLC CALCASIEU PASS LNG PROJECT CAMERON, LA	Aeroderivative Simple Cycle Combustion Turbine	263	MM BTU/H	Proper Equipment Design, Proper Operation, and Good Combustion Practices.	1.5	PPMV	3 HOUR AVERAGE	BACT-PSD
LA-0383	LAKE CHARLES LNG EXPORT COMPANY, LLC EXPORT TERMINAL CALCASIEU, LA	Turbines (EQT0020 - EQT0031)	508.8 and 511.3	MM BTU/H	Good combustion practices	0			BACT-PSD
MI-0454	LANSING BOARD OF WATER AND LIGHT LBWL-ERICKSON STATION EATON, MI	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	667	MM BTU/H	Good combustion practices.	5	LB/H	HOURLY EXCEPT DURING SU/SD	BACT-PSD
TX-0933	NACERO TX 1 LLC NACERO PENWELL FACILITY ECTOR, TX	TURBINE	34.5	MW	Oxidization catalyst, good combustion practices and the use of gaseous fuel	1.7	PPMVD		BACT-PSD
*TX-0989	ENTERGY TEXAS INC LONE STAR POWER STATION LIBERTY, TX	Simple Cycle Gas Turbines			Oxidation catalyst and good combustion practices	1	PPMVD	15% O2 3-HR	LAER

RBLC search conducted 06/03/2025

TABLE 1D

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for SO2

Simple Cycle Turbines Firing Natural Gas

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
	ALASKA GASLINE DEVELOPMENT CORPORATION				Good combustion practices and				
	GAS TREATMENT PLANT	Six (6) Simple Cycle Gas-			clean burning fuel low sulfur natural	96	PPMV SULFUR IN FUEL	PRIOR TO COMPLETING TREATMENT TRAINS	
AK-0085	NORTH SLOPE BOROUGH, AK	Turbines (Power Generation)	386	MM BTU/H	gas	16	PPMV SULFUR IN FUEL	AFTER COMPLETING TREATMENT TRAINS	BACT-PSD
	DUKE ENERGY INDIANA, LLC VERMILLION	SIMPLE CYCLE, NATURAL						EACH TURBINE	
	GENERATING STATION	GAS FIRED COMBUSTION				0.6	LB/H	COMPLIANCE DETERMINED END OF EACH	
IN-0261	VERMILLION, IN	TURBINES	80	MW	GOOD COMBUSTION PRACTICES	0.1	TON/12 CONSEC. MONTH	MONTH	BACT-PSD
	VENTURE GLOBAL CALCASIEU PASS, LLC								
	CALCASIEU PASS LNG PROJECT	Aeroderivative Simple Cycle			Exclusive Combustion of Low Sulfur				
LA-0331	CAMERON, LA	Combustion Turbine	263	MM BTU/H	Fuel	4	PPMV	ANNUAL AVERAGE	BACT-PSD
	NACERO TX 1 LLC								
	NACERO PENWELL FACILITY								
TX-0933	ECTOR, TX	TURBINE	34.5	MW	Low sulfur content in fuel	0			BACT-PSD

RBLC search conducted 06/03/2025

TABLE 1E

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for PM

Simple Cycle Turbines Firing Natural Gas

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
AK-0085	ALASKA GASLINE DEVELOPMENT CORPORATION GAS TREATMENT PLANT NORTH SLOPE BOROUGH, AK	Six (6) Simple Cycle Gas-Turbines (Power Generation)	386	MM BTU/H	Good Combustion Practices and burning clean fuels (NG)	0.007	LB/MM BTU	3-HOUR AVERAGE	BACT-PSD
IN-0261	DUKE ENERGY INDIANA, LLC VERMILLION GENERATING STATION VERMILLION, IN	SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	80	MW	GOOD COMBUSTION PRACTICES	5	LB/H	EACH TURBINE	BACT-PSD
LA-0307	MAGNOLIA LNG, LLC MAGNOLIA LNG FACILITY CALCASIEU, LA	Gas Turbines (8 units)	333	MM BTU/H	good combustion practices and fueled by natural gas	0			BACT-PSD
LA-0331	VENTURE GLOBAL CALCASIEU PASS, LLC CALCASIEU PASS LNG PROJECT CAMERON, LA	Aeroderivative Simple Cycle Combustion Turbine	263	MM BTU/H	Exclusive Combustion of Fuel Gas, Good Combustion Practices Including Proper Burner Design.	4.5	LB/H	3 HOUR AVERAGE	BACT-PSD
LA-0383	LAKE CHARLES LNG EXPORT COMPANY, LLC EXPORT TERMINAL CALCASIEU, LA	Turbines (EQT0020 - EQT0031)	508.8 and 511.3	MM BTU/H	Good combustion practices and clean natural gas	0			BACT-PSD
MI-0454	LANSING BOARD OF WATER AND LIGHT LBWL-ERICKSON STATION EATON, MI	EUCTGSC1--A nominally rated 667 MMBTU/H natural gas-fired simple cycle CTG	667	MM BTU/H	Pipeline quality natural gas, inlet air conditioning and good combustion practices.	4.5	LB/H	HOURLY	BACT-PSD
*TN-0187	TENNESSEE VALLEY AUTHORITY JOHNSONVILLE HUMPHREYS, TN	Ten Simple Cycle NG Turbines	465.8	MM BTU/H	good combustion design and operating practices and the use of low sulfur fuel	3.65	LB/H		BACT-PSD

RBLC search conducted 06/03/2025

TABLE 2A

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for NOx

Natural Gas RICE

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
MI-0440	MICHIGAN STATE UNIVERSITY INGHAM, MI	FGENGINES	16500	HP	Selective catalytic reduction	0.5 1	G/HP-H G/HP-H	HOURLY EXCEPT DURING STARTUP/SHUTDOWN HOURLY, SEE ADDITIONAL NOTES	BACT-PSD
MI-0459	LANSING BOARD OF WATER AND LIGHT DELTA ENERGY PARK EATON, MI	FG-ENGINES	29147	BHP	Selective catalytic reduction, lean burn combustion.	0.5 49.7	G/B-HP-H LB/H	HOURLY, EXCEPT SU/SD OPERATING HR; DURING SU/SD	BACT-PSD
TX-0755	DELAWARE BASIN MIDSTREAM LLC RAMSEY GAS PLANT REEVES, TX	Internal Combustion Compressor Engines	206149	MMBTU/YR	Ultra Lean-burn engines firing natural gas	0.5 17.12	G/HP H TPY	EACH ENGINE	BACT-PSD

RBLC search conducted 06/03/2025

TABLE 2B

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for CO

Natural Gas RICE

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
MI-0440	MICHIGAN STATE UNIVERSITY INGHAM, MI	FGENGINES	16500	HP	Oxidation catalyst	0.3 2	G/HP-H G/HP-H	HOURLY EXCEPT DURING STARTUP/SHUTDOWN HOURLY; EACH ENGINE	BACT-PSD
MI-0459	LANSING BOARD OF WATER AND LIGHT DELTA ENERGY PARK EATON, MI	FG-ENGINES	29147	BHP	Catalytic oxidation, good combustion practices.	0.3 36.9	G/B-HP-H LB/H	HOURLY EXCEPT DURING STARTUP/SHUTDOWN OPERATING HOUR DURING SU/SD	BACT-PSD
TX-0755	DELAWARE BASIN MIDSTREAM LLC RAMSEY GAS PLANT REEVES, TX	Internal Combustion Compressor Engines	206149	MM BTU/YR	Ultra Lean-burn engines firing residue gas (with low carbon density) which is equivalent to natural gas, and use of oxidation catalysts	0.083 2.84	G/HP HR TPY	EACH ENGINE	BACT-PSD
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION- WESTON PLANT MARATHON, WI	Reciprocating Internal Combustion Engine (RICE) (P101-P107)	152.3	MM BTU/H	Use of good combustion practices and use of oxidation catalyst	4.43 14	LB/H PPMVD	15% O2, 1-HR AVG. BASIS	BACT-PSD

RBLC search conducted 06/03/2025

TABLE 2C

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for VOC

Natural Gas RICE

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
FL-0370	CITY OF TALLAHASSEE ARVAH B. HOPKINS GENERATING STATION LEON, FL	18.82 MW SI Internal Combustion Engine Unit	161.4	MM BTU/H	Oxidation Catalyst for each engine	26 42	PPMVD AT 15% O2 PPMVD AT 15% O2	& 4.92 LB/HOUR AT 70% AND 100% LOAD & 3.60 LB/HOUR AT 40% LOAD	BACT-PSD
MI-0440	MICHIGAN STATE UNIVERSITY INGHAM, MI	FGENGINES	16500	HP	Oxidation catalyst	11 0.7	LB/H G/HP-H	EACH ENG./HOURLY/EXCEPT DURING START-SHU EACH ENG/HOURLY	BACT-PSD
MI-0459	LANSING BOARD OF WATER AND LIGHT DELTA ENERGY PARK EATON, MI	FG-ENGINES	29147	BHP	Catalytic oxidation, good combustion practices.	20 0.7	LB/H G/B-HP-H	HOURLY; INCLUDING FORMALDEHYDE HOURLY	BACT-PSD
TX-0755	DELAWARE BASIN MIDSTREAM LLC RAMSEY GAS PLANT REEVES, TX	Internal Combustion Compressor Engines	206149	MM BTU/YR	Ultra lean-burn engines firing residue gas which is equivalent to natural gas, , and use of oxidation catalysts	0.091 3.12	G/HP H TPY	EACH ENGINE	BACT-PSD
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION- WESTON PLANT MARATHON, WI	Reciprocating Internal Combustion Engine (RICE) (P101-P107)	152.3	MM BTU/H	Use of good combustion practices and use of an oxidation catalyst.	4.49	LB/H		BACT-PSD

RBLC search conducted 06/03/2025

TABLE 2D

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for PM

Natural Gas RICE

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
FL-0370	CITY OF TALLAHASSEE ARVAH B. HOPKINS GENERATING STATION LEON, FL	18.82 MW SI Internal Combustion Engine Unit	161.4	MM BTU/H	Good combustion practices (i.e., advanced lean-burn engine design, ignition timing, and air-to-fuel ration controllers with regular and preventative maintenance as recommended by the manufacturer) along with combustion of pipeline-quality natural gas shall be utilized to minimize emissions of PM/PM10/PM2.5 emissions. In addition, as measured by reference method stack test, ammonia slip from each engine shall not exceed 10 ppmv to minimize PM2.5 emissions.	0			BACT-PSD
MI-0440	MICHIGAN STATE UNIVERSITY INGHAM, MI	FGENGINES	16500	HP	Natural gas and good combustion practices	3	LB/H	EACH ENG/HOURLY/EXCEPT STARTUP/SHUTDOWN	BACT-PSD
MI-0459	LANSING BOARD OF WATER AND LIGHT DELTA ENERGY PARK EATON, MI	FG-ENGINES	29147	BHP	Good combustion practices.	4	LB/H	HOURLY	BACT-PSD
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION- WESTON PLANT MARATHON, WI	Reciprocating Internal Combustion Engine (RICE) (P101-P107)	152.3	MM BTU/H	Use of good combustion practices and use of pipeline quality natural gas	2.37	LB/H		BACT-PSD

RBLC search conducted 06/03/2025

TABLE 3A

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for NOx

Inlet Air Heaters and Small Process Heaters Firing Natural Gas

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
AL-0307	CONSTELLIUM ALLOYS PLANT COLBERT, AL	PACKAGE BOILER	17.5	MM BTU/H	LOW NOX BURNER FLUE GAS RECIRCULATION GCP	30 0.64	PPMVD LB/H	3% O2	BACT-PSD
AL-0329	TENNESSEE VALLEY AUTHORITY COLBERT COMBUSTION TURBINE PLANT COLBERT, AL	Three Gas Heaters	10	MM BTU/H		0.011	LB/MMBTU	3 HOUR AVG	BACT-PSD
AR-0171	NUCOR CORPORATION NUCOR STEEL ARKANSAS	SN-233 Galvanizing Line Boilers	15	MM BTU/H each	Low Nox Burners	0.1	LB/MMBTU	3-HR	BACT-PSD
FL-0356	FLORIDA POWER & LIGHT OKEECHOBEE CLEAN ENERGY CENTER OKEECHOBEE, FL	Two natural gas heaters	10	MM BTU/H	Must have NOx emission design value less than 0.1 lb/MMBtu	0.1	LB/MMBTU		BACT-PSD
FL-0363	FLORIDA POWER AND LIGHT COMPANY DANIA BEACH ENERGY CENTER BROWARD, FL	Two natural gas heaters	9.9	MM BTU/H	Manufacturer certification	0.1	LB/MM BTU	DESIGN VALUE	BACT-PSD
IN-0371	WABASH VALLEY RESOURCES, LLC VIGO, IN	Auxiliary Boiler (AB-3)	20	MM BTU/H	Low NOx burners and Good Combustion Practices	35	LB/MMSCF		BACT-PSD
LA-0307	MAGNOLIA LNG, LLC MAGNOLIA LNG FACILITY CALCASIEU, LA	Regenerative Heaters	7.37	MM BTU/H	good combustion practices	0			BACT-PSD
LA-0349	DRIFTWOOD LNG LLC DRIFTWOOD LNG FACILITY CALCASIEU, LA	Hot Oil Heaters (5)	16.13	MM BTU/H	ULNB and Good Combustion Practices	0			BACT-PSD
MI-0420	DTE GAS COMPANY MILFORD COMPRESSOR STATION OAKLAND, MI	FGAUXBOILERS	6	MM BTU/H	Ultra low NOx burners and good combustion practices.	14	PPMVOL	AT 15%O2; TEST PROTOCOL	BACT-PSD
MI-0442	THOMAS TOWNSHIP ENERGY, LLC SAGINAW, MI	FGPREHEAT	7	MM BTU/H	Good combustion practices and low NOx burners	0.036	LB/MM BTU	HOURLY; EACH UNIT	BACT-PSD
OH-0374	GUERNSEY POWER STATION LLC GUERNSEY, OH	Fuel Gas Heaters (2 identical, P007 and P008)	15	MM BTU/H	Low-NOx gas burner	0.3 1.31	LB/H T/YR	PER ROLLING 12 MONTH PERIOD	BACT-PSD
OH-0379	PETMIN USA INCORPORATED ASHTABULA, OH	Startup boiler (B001)	15.17	MM BTU/H	Low-NOX burners, good combustion practices and the use of natural gas	0.634 2.78	LB/H T/YR	PER ROLLING 12 MONTH PERIOD	BACT-PSD
PA-0309	LACKAWANNA ENERGY CENTER, LLC JESSUP LACKAWANNA, PA	Auxillary Boiler	13.31	MM BTU/H	SCR and ultra low NOx burners, Fired only on natural gas supplied by a public utility.	0.006 2.22	LB/MM BTU TPY	30-DAY ROLLING AVERAGE BASIS 12-MONTH ROLLING BASIS	LAER
*PA-0316	RENOVO ENERGY CENTER, LLC CLINTON, PA	Water Bath Heater	15	MM BTU		0.01 0.66	LB TPY	MMBTU	LAER
TX-0772	JEFFERSON RAILPORT TERMINAL I TEXAS LLC PORT OF BEAUMONT PETROLEUM TRANSLOAD TERMINAL (PBPTT) ORANGE, TX	Commercial/Institutional-Size Boilers/Furnaces	13.2	MM BTU/H		0.1	LB/MM BTU		BACT-PSD
WI-0306	WPL- RIVERSIDE ENERGY CENTER ROCK, WI	Temporary Boiler (B98A)	14.67	MM BTU/H	Low NOx burners, flue gas recirculation, shall be operated for no more than 500 hours, and shall combust only pipeline quality natural gas.	0.04	LB/MM BTU	AVG. OVER ANY CONSECUTIVE 3-HR PERIOD	BACT-PSD

*WI-0326	NEMADJI TRAIL ENERGY CENTER DOUGLAS, WI	Heaters: S04/P04 and S05/P05	10	MM BTU/H	(a) P04 and P05 shall be equipped with low-NOx burners. (b) Only pipeline quality natural gas may be combusted in P04 and P05. (c) The permittee shall operate and maintain P04 and P05 according to the manufacturer's recommendations. (d) The permittee shall tune within 120 days of the initial operation, and within 24-months of each preceding tune-up. (e) NOx emissions from P04 and P05 may not exceed 0.049 lb/MMBtu each.	0.049	LB/MM BTU		BACT-PSD

RBLC search conducted 06/03/2025

TABLE 3B

NSR RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for CO

Inlet Air Heaters and Small Process Heaters Firing Natural Gas

RBLCID	COMPANY NAME & LOCATION	PROCESS_NAME	THROUGHPUT	THROUGHPUT_UNIT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT	UNITS	AVG_TIME	CASE-BY-CASE
AL-0307	CONSTELLIUM ALLOYS PLANT COLBERT, AL	PACKAGE BOILER	17.5	MM BTU/H	GCP	0.08	LB/MMBTU		BACT-PSD
AL-0329	TENNESSEE VALLEY AUTHORITY COLBERT COMBUSTION TURBINE PLANT COLBERT, AL	Three Gas Heaters	10	MM BTU/H		0.08	LB/MMBTU	3 HOUR AVG	BACT-PSD
AR-0171	NUCOR CORPORATION NUCOR STEEL ARKANSAS	SN-233 Galvanizing Line Boilers	15	MM BTU/H each	Good combustion practices	0.084	LB/MMBTU		BACT-PSD
LA-0307	MAGNOLIA LNG, LLC MAGNOLIA LNG FACILITY CALCASIEU, LA	Regenerative Heaters	7.37	MM BTU/H	good combustion practices	0			BACT-PSD
LA-0349	DRIFTWOOD LNG LLC DRIFTWOOD LNG FACILITY CALCASIEU, LA	Hot Oil Heaters (5)	16.13	MM BTU/H	Good Combustion Practices	0			BACT-PSD
MI-0420	DTE GAS COMPANY MILFORD COMPRESSOR STATION OAKLAND, MI	FGAUXBOILERS	6	MM BTU/H	Good combustion practices and clean burn fuel (pipeline quality natural gas)	0.08	LB/MMBTU	TEST PROTOCOL	BACT-PSD
MI-0442	THOMAS TOWNSHIP ENERGY, LLC SAGINAW, MI	FGPREHEAT	7	MM BTU/H	Good combustion practices	0.037	LB/MMBTU	HOURLY; EACH UNIT	BACT-PSD
OH-0374	GUERNSEY POWER STATION LLC GUERNSEY, OH	Fuel Gas Heaters (2 identical, P007 and P008)	15	MM BTU/H	Combustion control	0.83 3.64	LB/H T/YR	PER ROLLING 12 MONTH PERIOD	BACT-PSD
OH-0379	PETMIN USA INCORPORATED ASHTABULA, OH	Startup boiler (B001)	15.17	MM BTU/H	good combustion practices and the use of natural gas	1.25 5.47	LB/H T/YR	PER ROLLING 12 MONTH PERIOD	BACT-PSD
PA-0309	LACKAWANNA ENERGY CENTER, LLC JESSUP LACKAWANNA, PA	Auxillary Boiler	13.31	MM BTU/H		0.037 13.68	LB/MMBTU TONS	12-MONTH ROLLING BASIS	BACT-PSD
TX-0772	JEFFERSON RAILPORT TERMINAL I TEXAS LLC PORT OF BEAUMONT PETROLEUM TRANSLOAD TERMINAL (PBPTT) ORANGE, TX	Commercial/Institutional-Size Boilers/Furnaces	13.2	MM BTU/H	Good combustion practice to ensure complete combustion.	50	PPMVD @ 3% O2		BACT-PSD
TX-0939	ENTERGY TEXAS, INC. ORANGE COUNTY ADVANCED POWER STATION ORANGE, TX	Water Bath Heater	16.8	MM BTU/H	Good combustion practices	50	PPMVD	3% O2	BACT-PSD
WI-0306	WPL- RIVERSIDE ENERGY CENTER ROCK, WI	Temporary Boiler (B98A)	14.67	MM BTU/H	Shall be operated for no more than 500 hours and combust only pipeline quality natural gas.	0.04	LB/MMBTU	HEAT INPUT	BACT-PSD
*WI-0326	NEMADJI TRAIL ENERGY CENTER DOUGLAS, WI	Heaters: S04/P04 and S05/P05	10	MM BTU/H	(a) The permittee shall operate and maintain according to the manufacturer's recommendations. (b) The permittee shall tune within 120 days of the initial operation, and within 24-months of each preceding tune-up. (c) CO emissions may not exceed 0.08 lb/MMBtu. (d) The permittee may only combust pipeline quality natural gas.	0.08	LB/MMBTU		BACT-PSD

RBLC search conducted 06/03/2025

Table 4a

NSP RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for GHG

Combustion Sources

RBLC ID	Company Name and Location	Unit and Size	Throughput	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
Combustion Turbines							
AK-0085	ALASKA GASLINE DEVELOPMENT CORPORATION GAS TREATMENT PLANT	Simple Cycle Gas-Turbines 44 MW each (6 units)	386 MMBtu/hr	Good combustion practices and clean burning fuel (NG)	117.1	LB/MMBTU	3-HOUR AVERAGE
MI-0454	LANSING BOARD OF WATER AND LIGHT LBWL-ERICKSON STATION	Natural gas-fired simple cycle CTG	667 MMbtu/hr	Low carbon fuel (pipeline quality natural gas), good combustion practices, and energy efficiency measures.	318404	T/YR	12-MO ROLLING TIME PERIOD
*TN-0187	TENNESSEE VALLEY AUTHORITY JOHNSONVILLE COMBUSTION TURBINE	Simply Cycle Gas-Turbines 44 MW each (6 units)	465.8 MMBtu/hr	Efficient turbine operation and good combustion practices	120	LB/MMBTU	-
TX-0826	GOLDEN SPREAD ELECTRIC COOPERATIVE, INC. MUSTANG STATION	Simple Cycle Turbine	162.8 MW	Pipeline quality natural gas and good combustion practices	120	LB/MMBTU	-
TX-0794	BRAZOS ELECTRIC COOPERATIVE HILL COUNTY GENERATING FACILITY	GE 7FA.004 Turbine	171.0 MW	None	1434	LB/MWH	-

RBLC ID	Company Name and Location	Unit and Size	Throughput	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
Engines							
FL-0370	CITY OF TALLAHASSEE ARVAH B. HOPKINS GENERATING STATION	18.82 MW SI Internal Combustion Engine Unit 1A	161.4 MMBtu/hour	Use of new natural gas-fired, thermally efficient SI RICE combined with good combustion and maintenance practices to maintain optimum efficiency	1110	LB/MWH, BASED ON HHV	THREE 1-HOUR TEST RUNS @ 100%, 70% & 40%
MI-0459	LANSING BOARD OF WATER AND LIGHT LANSING BOARD OF WATER AND LIGHT--DELTA ENERGY PARK	FG-ENGINES Natural Gas Fired RICE (6 units)	29147 BHP	Good combustion practices, use of current energy efficiency measures.	90268	T/YR	12-MO ROLLING TIME PERIOD
MI-0440	MICHIGAN STATE UNIVERSITY	FGENGINES Natural Gas-Fired RICE (4 units)	16500 HP	Utilize low-carbon fuels and implement energy efficiency measures and preventative maintenance pursuant to manufacturer recommendations.	48724	T/YR	12-MONTH ROLLING TIME PERIOD
WI-0314	WISCONSIN PUBLIC SERVICE CORPORATION WESTON PLANT	18 MW RICE(P101-P107) (7 units)	152.3 MMBTU/H	Use of good combustion practices and use of pipeline quality natural gas	1100	LB/MWH ELEC. OUTPUT	ANY 12-CONSECUTIVE-OPERATING- MONTHS

RBLC ID	Company Name and Location	Unit and Size	Throughput	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
Heaters							
AL-0307	CONSTELLIUM ALLOYS PLANT	PACKAGE BOILER	17.5 MMBTU/H	None	34189	T/YR	12 MONTH ROLLING TOTAL
OH-0374	GUERNSEY POWER STATION LLC	Fuel Gas Heaters P007 and P008 (2 units)	15 MMBTU/H	Natural gas, low-emitting fuel	7695	T/YR	PER ROLLING 12 MONTH PERIOD
KY-0110	NUCOR NUCOR STEEL BRANDENBURG	EP 03-05 - Steckel Mill Coiling Furnaces #1 & #2	17.5 MMBtu/hr, each	This EP is required to have a Good Combustion and Operating Practices (GCOP) Plan.	18142	TON/YR	12-MONTH ROLLING
AR-0171	NUCOR CORPORATION NUCOR STEEL ARKANSAS	SN-233 Galvanizing Line Boilers	15 MMBTU/hr each	Good combustion practices	121	LB/MMBTU	-
KY-0115	NUCOR STEEL GALLATIN, LLC	Pickle Line #2 Boiler #1 & #2 (EP 21-04 & EP 21-05)	18 MMBtu/hr, each	The permittee must develop a Good Combustion and Operating Practices (GCOP) Plan and implement various design and operational efficiency requirements.	12675	TONS/YR	EACH
OH-0379	PETMIN USA INCORPORATED	Startup boiler (B001)	15.17 MMBTU/H	Good combustion practices and the use of natural gas	1784	LB/H	-
AL-0329	TENNESSEE VALLEY AUTHORITY COLBERT COMBUSTION TURBINE PLANT	Gas Heaters (3 units)	10 MMBtu/hr	None	117.1	LB/MMBTU	-
MI-0442	THOMAS TOWNSHIP ENERGY, LLC	FGPREHEAT (2 units)	7 MMBTU/H	Energy efficiency	3590	T/YR	12-MO ROLLING TIME PERIOD; EACH UNIT
IN-0382	DUKE ENERGY INDIANA, INC.- CAYUGA GENERATING STATION	Turbine Fuel Heaters (2 units)	10 MMBtu/hr	good combustion practices and use of pipeline quality natural gas	10258	TONS	PER TWELVE (12) CONSECUTIVE MONTH PERIOD

Table 4b

NSP RACT/BACT/LAER Clearinghouse Database

BACT-PSD Sources for GHG

SF6 Equipment

RBLC ID	Company Name and Location	Unit and Size	Control Technology	Emission Limit	Emission Limit Units	Averaging Period
FL-0354	FLORIDA POWER & LIGHT	Circuit Breakers	Limitation on leaks	0.5	% PER YEAR	MUST HAVE CERTIFIED LEAK RATE LESS THAN
FL-0355	FLORIDA POWER & LIGHT (FPL)	Circuit breakers	Limitation on leak of SF6 from circuit breaker	0.5	PERCENT	LEAK RATE PER YEAR
FL-0356	FLORIDA POWER & LIGHT	Circuit breakers	Leak prevention. Must have manufacturer-gu	0		
FL-0363	FLORIDA POWER AND LIGHT COMPANY	Circuit breakers (two)	Certified leak rate < 0.5% per year	0.5	% LEAK PER YEAR	
FL-0367	SHADY HILLS ENERGY CENTER, LLC	Two Circuit Breakers	Certified leak rate < 0.5% per year	0.5	% LEAK PER YEAR	
FL-0371	SHADY HILLS ENERGY CENTER, LLC	Two Circuit Breakers	Certified leak rate < 0.5% per year	0.5	% LEAK PER YEAR	
IL-0129	CPV THREE RIVERS, LLC	Circuit Breakers		0.5	% LEAK RATE	CALENDAR YEAR AVERAGE
IL-0130	JACKSON GENERATION, LLC	Circuit Breakers		0.5	PERCENT LEAK RATE	CALENDAR YEAR AVERAGE

IL-0133	LINCOLN LAND ENERGY CENTER (A/K/A EMBERCLEAR)	Circuit Breakers		0.5	PERCENT LEAK RATE	12-MONTH ROLLING AVERAGE
IN-0382	DUKE ENERGY INDIANA, INC.	Electrical Circuit Breakers	fully enclosed pressurized SF6 circuit breakers outfitted with density alarms for leak detection	0.5	%	PER TWELVE (12) CONSECUTIVE MONTH PERIOD
IN-0384	INVENERGY THERMAL DEVELOPMENT LLC	Circuit Breakers	totally enclosed and pressurized circuit breakers with a design leak rate of no more than 0.5% and a density alarm for leak detection	73.6	LB	TWELVE (12) CONSECUTIVE MONTH PERIOD
PA-0309	LACKAWANNA ENERGY CENTER, LLC	Circuit breakers with SF6	low pressure alarms and low pressure lockout system	6	LB/12MO	ANY 12 CONSECUTIVE MONTH PERIOD
PA-0310	CPV FAIRVIEW, LLC	Circuit breakers	State-of-the-art sealed enclosed-pressure circuit breakers with leak detection	1500	PPM	
WI-0299	WPL- RIVERSIDE ENERGY CENTER	Sulfur Hexafluoride Containing Circuit Breakers and Transformers (F90)		0.5	% LEAK RATE, BY WGHT	ANNUALLY

Accessed 11/13/2025

Cost Effectiveness Calculations - SCR for CTs
Pollutant: NOx

Table 1. Capital Cost Estimate

		Cost	Reference
Purchased Equipment			
Total Purchased Equipment Cost	A	$4,500,000	Vendor
Instrumentation	.10A	$450,000	EPA
Sales tax	.03A	$135,000	EPA
Freight	.05A	$225,000	EPA
	B = A*1.18	$5,310,000	
Direct Installation Cost			
Foundation and supports	.08B	$424,800	EPA
Erection and handling	.14B	$743,400	EPA
Electrical	.04B	$212,400	EPA
Piping	.02B	$106,200	EPA
Painting	.01B	$53,100	EPA
Insulation	.01B	$53,100	EPA
Building and site preparation not included			
Total Direct Installation Cost		$1,593,000	
Total Direct Cost		$6,093,000	
Indirect Cost			
Engineering	0.10B	$531,000	EPA
Construction and field expenses	0.05B	$265,500	EPA
Construction fee	0.10B	$531,000	EPA
Start-up	0.02B	$106,200	EPA
Performance test	0.01B	$53,100	EPA
Contingency	0.10B	$531,000	Estimate
Total Indirect Cost		$2,017,800	
Total Capital Cost		**$8,110,800**	

Table 2. Annual Cost

		Annual Cost	Reference
Direct Costs			
Catalyst management		$156,667	Estimate
Ammonia cost		$189,975	Estimate
Aux Power Cost		$284,200	Estimate
O&M Costs		$117,000	75% of FTE * $75
Total Direct Cost		$747,842	
Indirect Costs			
Property Taxes	0.01TCC	$81,108	EPA
Insurance	0.01TCC	$81,108	EPA
Admin.	0.02TCC	$162,216	EPA
Total Indirect Costs		$324,432	
Total Annual Costs Excluding Capital Recovery		**$1,072,274**	
Capital recovery		$832,260	
Interest	8.1%		
Lifetime	20 years		
Total Annual Cost		**$1,904,534**	

Table 3. Cost Effectiveness

Emission Reduction	80.7	tons/year	based on a 3ppm controlled emission rate
Cost Effectiveness	**$23,611**	$/ton	

Notes:
EPA Cost Control Manual, Section 3.2, Chapter 2, Table 2.10

Appendix E
Zoning Certification

Planning & Development Department
2101 O'Neil Avenue, Suite 202, Cheyenne WY 82001
(Phone) 307-637-6282

A COMMUNITY OF CHOICE

June 13, 2025

Nathan Groh
1301 W 24th Street,
Cheyenne, WY 82001
nathan.groh@blackhillscorp.com

RE: Zoning Verification for 6711 HR Ranch Road.

To whom this may concern,

This letter is being written per a request for the above-described property. This request is responding to the questions had about the subject property. This Zoning Verification Letter does not verify compliance with development regulations or certify any legal non-conformances. The City of Cheyenne assumes no liability for errors and omissions. All information was obtained from public records, which may be inspected during regular business hours. The information was provided on June 13, 2025.

The property listed above is zoned HI Heavy Industrial. The current use of the property is a Utility Station, which is an Administrative Use in this zone district.

HI zoning exists to the east and north of the property. LI Light Industrial is to the west. County A-2 is to the south.

There are no current or outstanding zoning violations on this property.

If you have any questions, please feel free to contact me at 307-638-4342 or cwhite@cheyennecity.org.

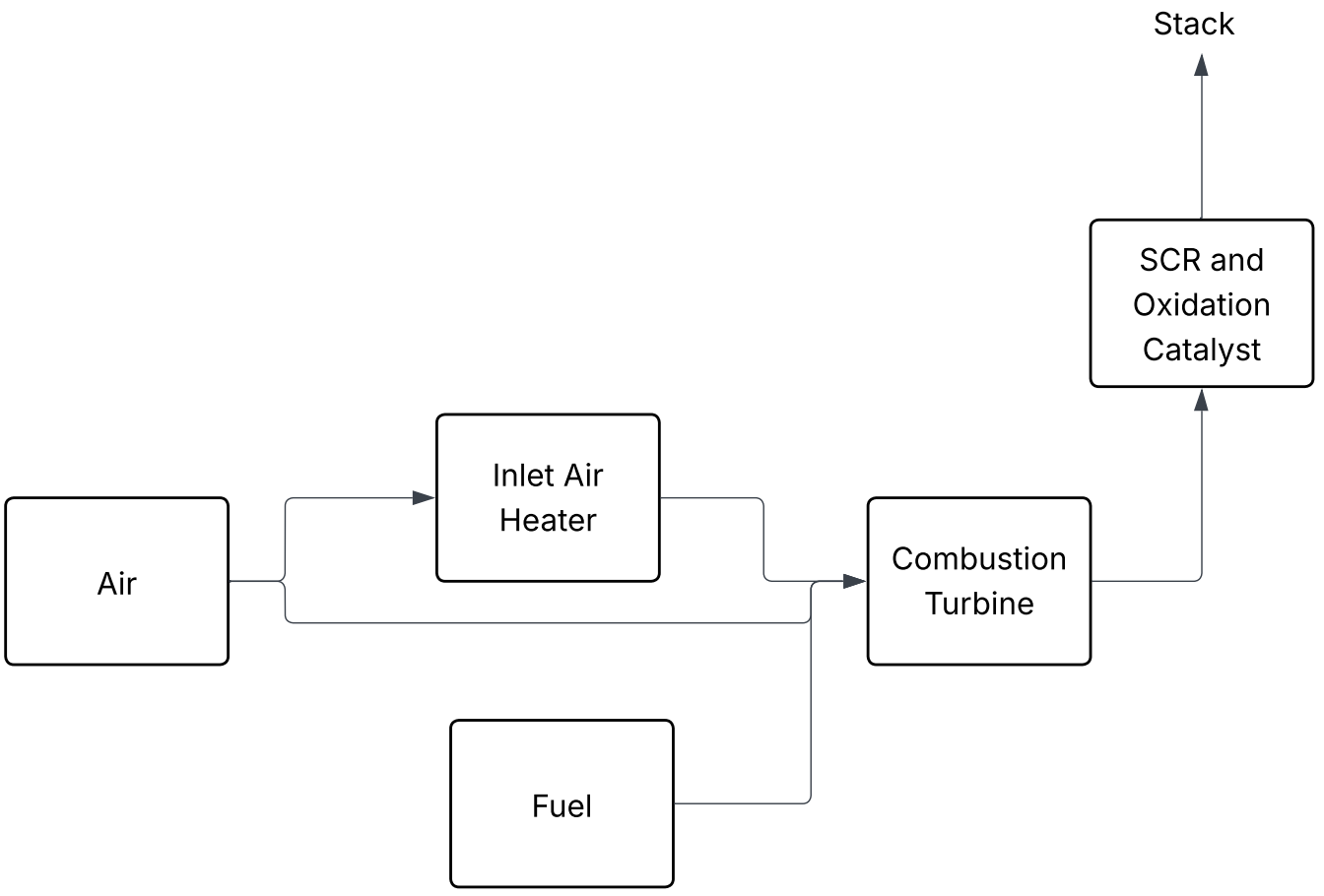
Sincerely,

Connor White
Planner II

Appendix F
Process Flow Diagram

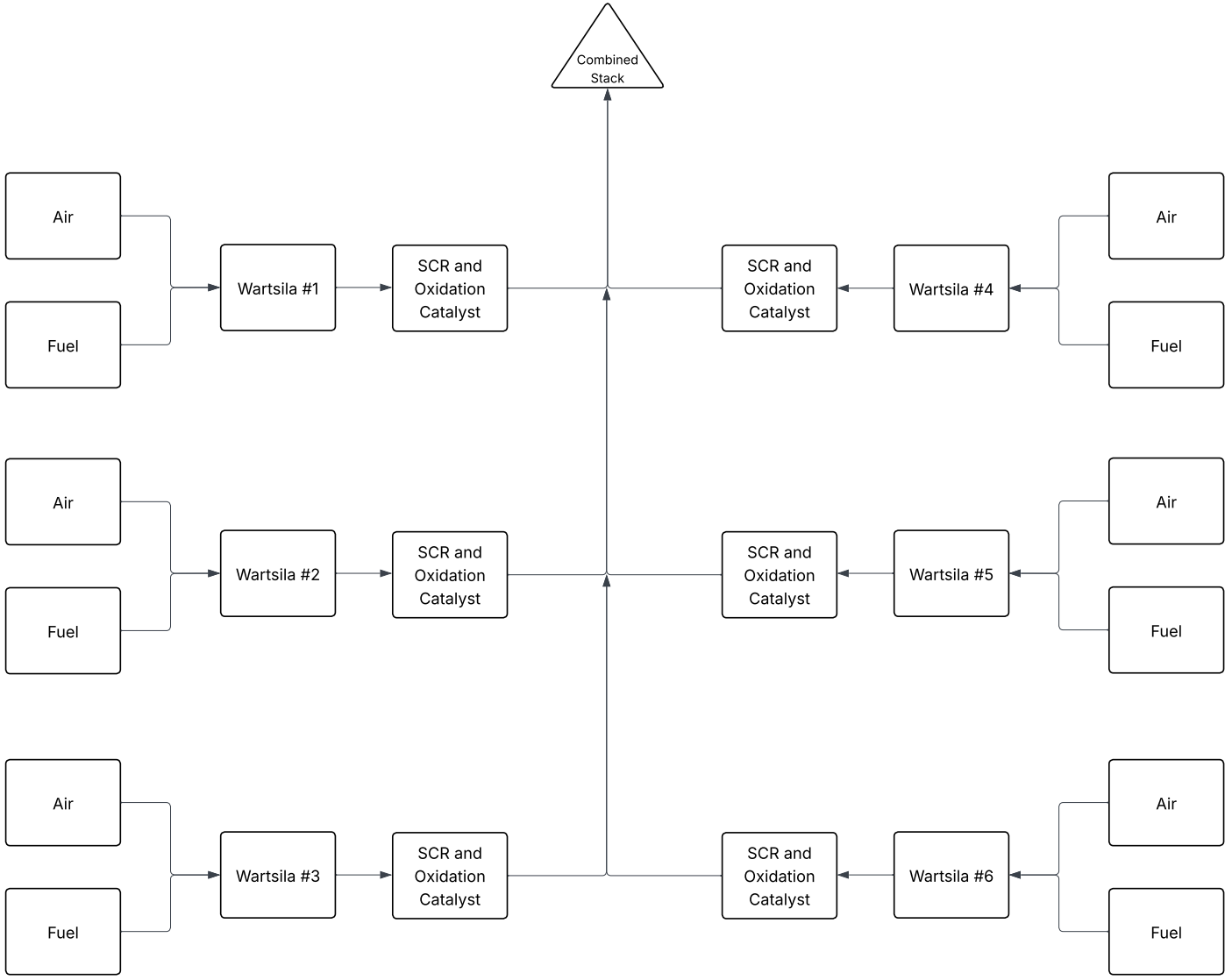
Combustion Turbine Process Flow Diagram

3 identical turbines to be constructed



Wartsila Process Flow Diagram - Single Block

4 identical blocks to be constrcted



Appendix G
Acid Rain Permit Application

United States
Environmental Protection Agency
Acid Rain Program

OMB No. 2060-0258
Approval expires 05/31/2025

Acid Rain Permit Application

For more information, see instructions and 40 CFR 72.30 and 72.31.

This submission is: ☒ new ☐ revised ☐ for ARP permit renewal

STEP 1

Identify the facility name, State, and plant (ORIS) code.

Facility (Source) Name	State	Plant Code
Cheyenne Prairie Generating Station	WY	57703

STEP 2

Enter the unit ID# for every affected unit at the affected source in column "a."

a	b
Unit ID#	Unit Will Hold Allowances in Accordance with 40 CFR 72.9(c)(1)
CT04	Yes
CT05	Yes
CT06	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes
	Yes

Facility (Source) Name (from STEP 1) Cheyenne Prairie Generating Station

STEP 3

Read the standard requirements.

Permit Requirements

(1) The designated representative of each affected source and each affected unit at the source shall:
   (i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30; and
   (ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;

(2) The owners and operators of each affected source and each affected unit at the source shall:
   (i) Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority; and
   (ii) Have an Acid Rain Permit.

Monitoring Requirements

(1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75.

(2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the source or unit, as appropriate, with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.

(3) The requirements of 40 CFR part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements

(1) The owners and operators of each source and each affected unit at the source shall:
   (i) Hold allowances, as of the allowance transfer deadline, in the source's compliance account (after deductions under 40 CFR 73.34(c)), not less than the total annual emissions of sulfur dioxide for the previous calendar year from the affected units at the source; and
   (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.

(2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.

(3) An affected unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
   (i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or
   (ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).

(4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.

(5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.

(6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.

(7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements

The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Facility (Source) Name (from STEP 1): Cheyenne Prairie Generating Station

STEP 3, Cont'd.

Excess Emissions Requirements

(1) The designated representative of an affected source that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
(2) The owners and operators of an affected source that has excess emissions in any calendar year shall:
   (i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
   (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements

(1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:
   (i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;
   (ii) All emissions monitoring information, in accordance with 40 CFR part 75, provided that to the extent that 40 CFR part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply.
   (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,
   (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
(2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability

(1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
(2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
(3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
(4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.
(5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
(6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit.
(7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Facility (Source) Name (from STEP 1) Cheyenne Prairie Generating Station

STEP 3, Cont'd.

Effect on Other Authorities

No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:

(1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;

(2) Limiting the number of allowances a source can hold; provided, that the number of allowances held by the source shall not affect the source's obligation to comply with any other provisions of the Act;

(3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;

(4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,

(5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

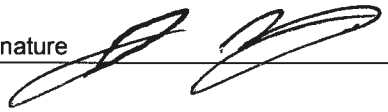
STEP 4

Certification

Read the certification statement, sign, and date.

I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name Jeremy Retzlaff

Signature 

Date 10-22-2025